

# EgyptAir Maintenance & Engineering

## Training Course

Code of Federal Regulation (CFR)

Title 14: Aeronautics and Space

PART 145 – Repair Stations

(Ref.14CFR ch.1 (1-1-09 Edition))

Training Course Ref. QA/FAR  
145/Inspectors/0111



***EASA Part 145 Approved Organization***

# Content

- **Introduction**
- **Part 145 – Repair Stations.**
- **Part 43 – Rules Governing Maintenance, Preventive Maintenance, Rebuilding, and Alteration**
- **Repair station manual**
- **Training program manual**

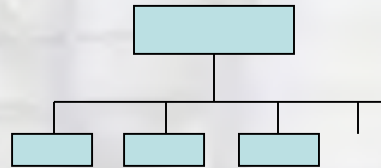
# Introduction

- The management of change**

CAA

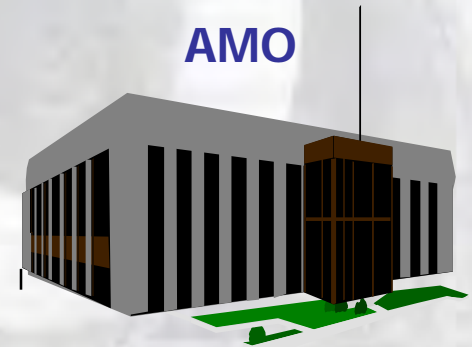


Applicable regulation

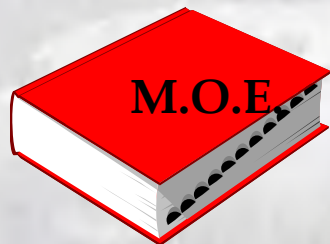


Organization structure

AMO



Facilities



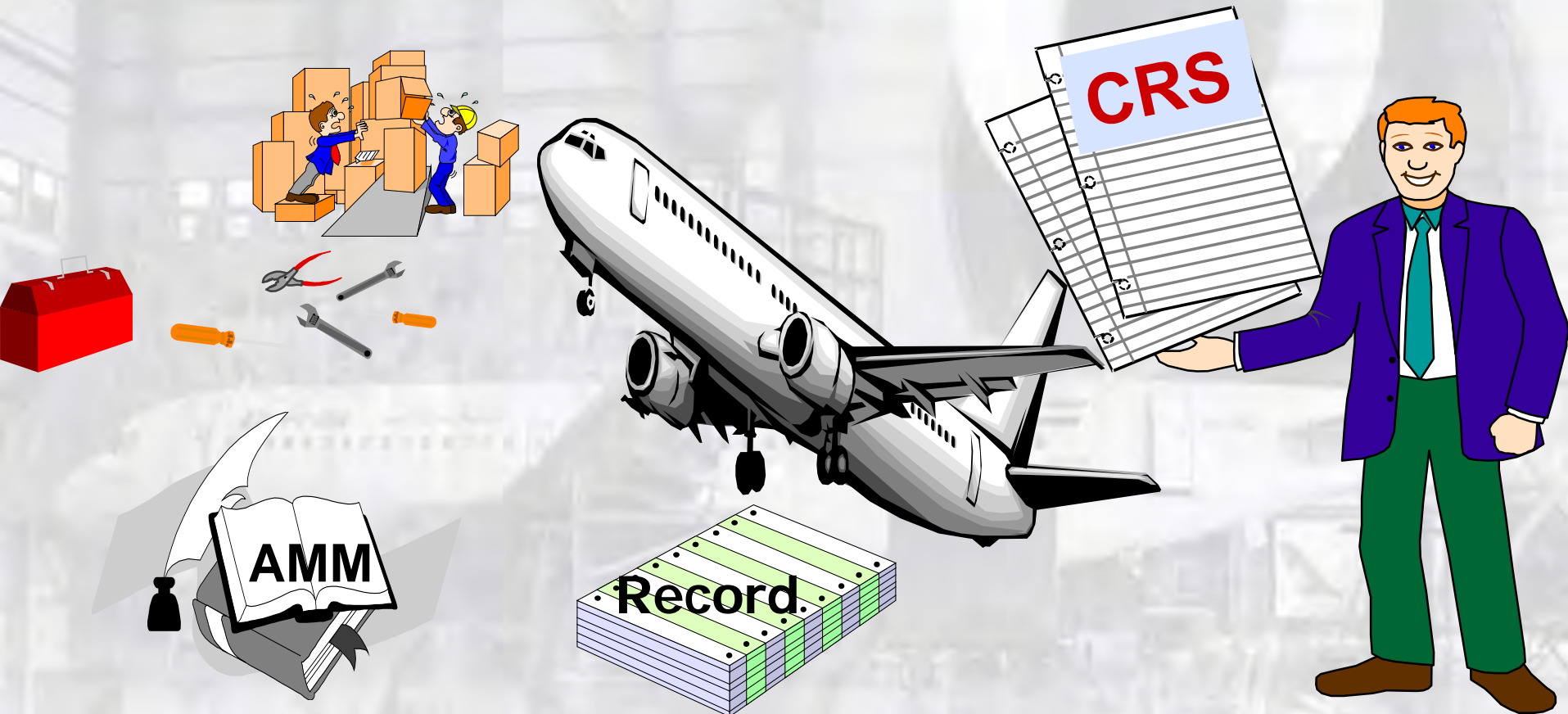
Quality documents



Personnel

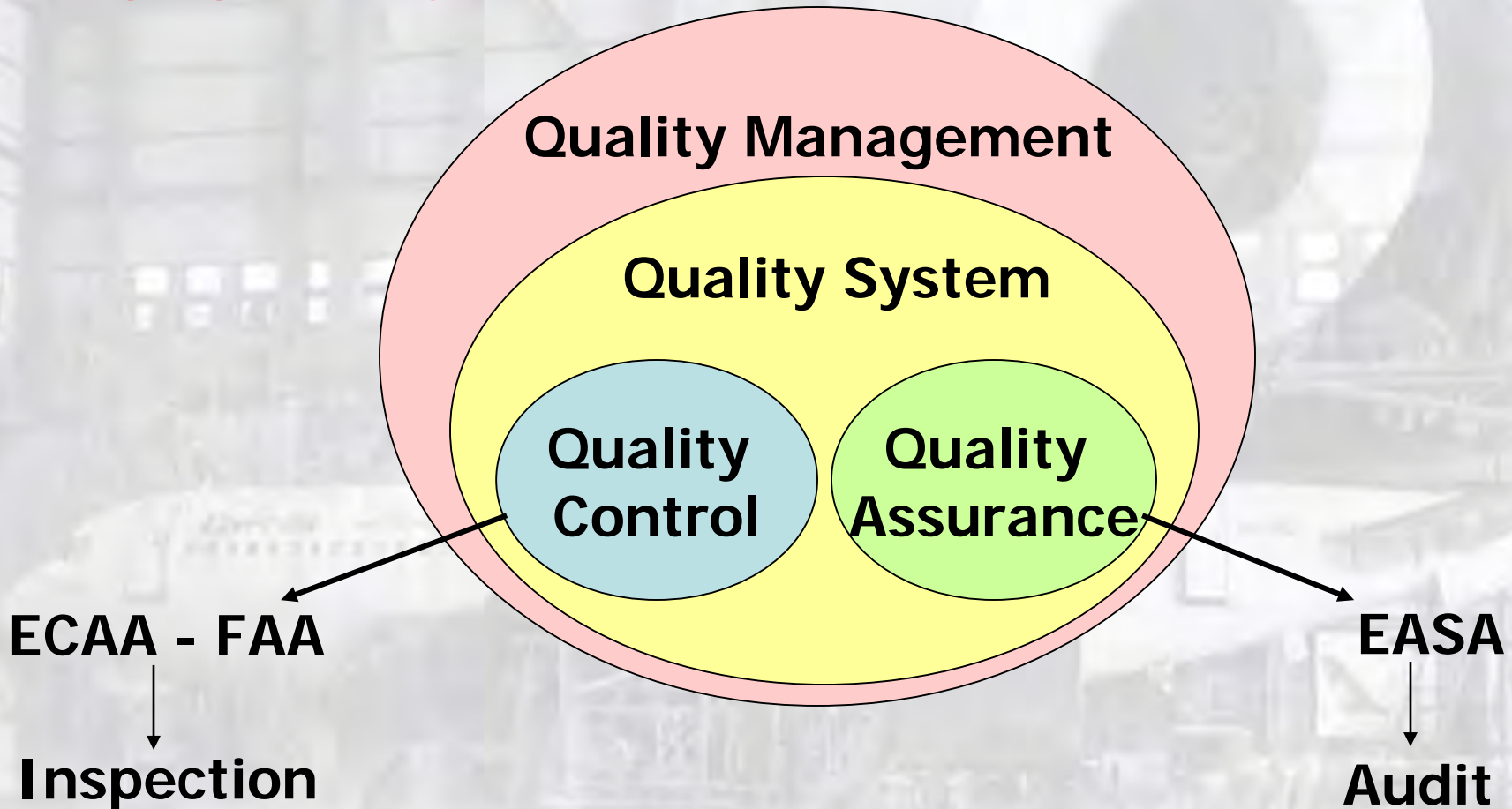
# Introduction (cont.)

**AMO product and product features.**



# Introduction (cont.)

## Managing Quality Functions



## Introduction (cont.)

### Definitions

**Inspection: A critical examination of an event or object for conformance with a standard. Results of inspections are reported only in items of findings.**

**Audit: A methodical, planned examination of process, records, and transactions to verify compliance with a specific audit criterion. Inspections are normally a part of an audit. Results are primarily presented in terms of findings and concerns. Auditing measures against a defined standard, but does not analyze the standard.**

## Introduction (cont.)

### Definitions (cont.)

**Quality System:** A documented organizational structure containing responsibilities, procedures, process, and resources that implement a management function to determine and enforce quality principles. A quality system encompasses quality assurance and quality control.

**Quality Control:** Conducting and directing supervision of quality tasks (Inspection of Product) to ensure the quality requirements of the product are achieved.

**Article:** An aircraft, airframe, aircraft engine, propeller, appliance, or component part.

## Introduction (cont.)

### Definitions (cont.)

- **Quality Assurance**: A management system for programming and coordinating the quality maintenance and improvement efforts of the various groups in a design and / or manufacturing organization, so as to permit design and / or production in compliance with regulatory and customer requirements.
- **Supervisor**: A person who directs the work performed under the repair station's certificate and OpSpecs. (see Part 145, section 145.153 for supervisory personnel requirements).



## **Introduction (cont.)**

### **Definitions (cont.)**

**Part 121: Operating requirements: domestic, flag, and supplemental operations**

**Part 125: Certification and operations: airplanes having a seating capacity of 20 or more passengers or a maximum payload capacity of 6,000 pounds or more; and rules governing persons on board such aircraft**

## **Introduction (cont.)**

### **Definitions (cont.)**

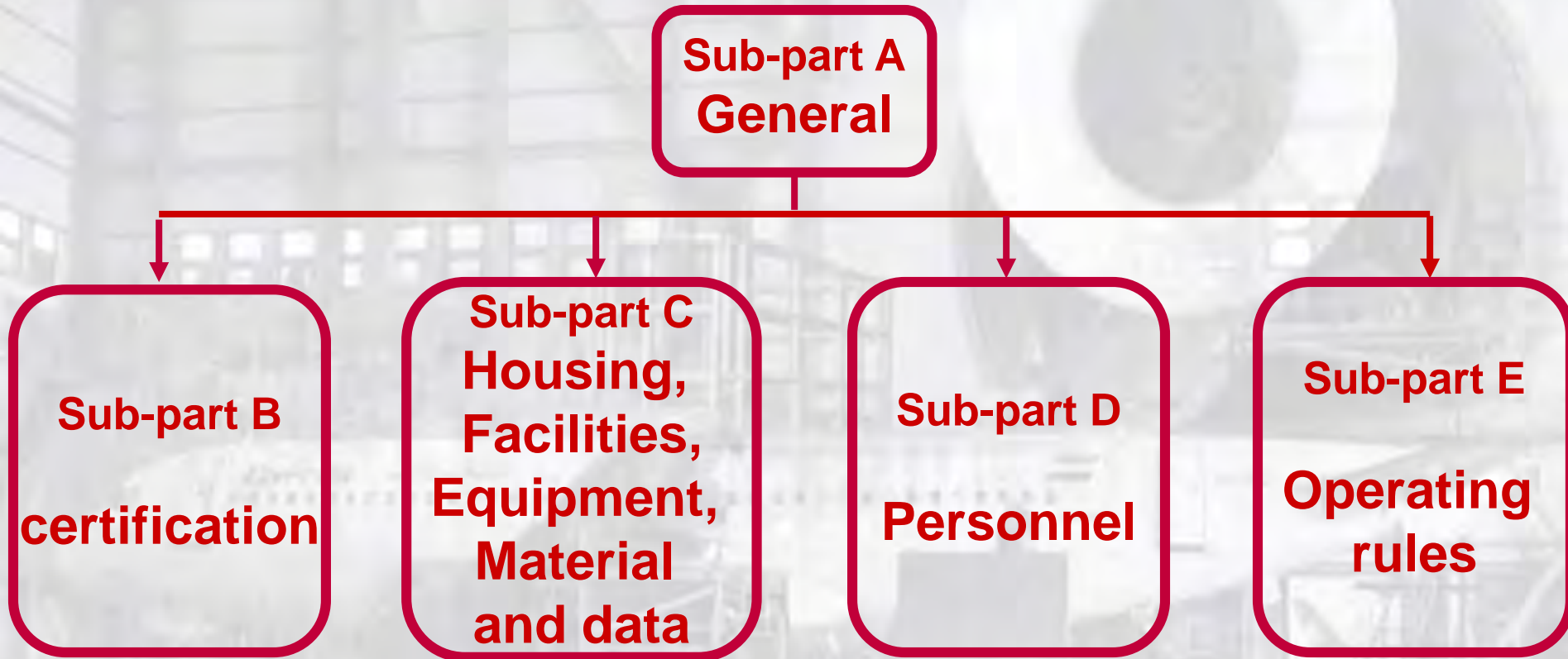
**Part 129: Operations: foreign air carriers and foreign operators of u.s.-registered aircraft engaged in common carriage**

**Part 135: Operating requirements: commuter and on demand operations and rules governing persons on board such aircraft**

## Introduction (cont.)

<b>Requirements</b>	<b>FAA</b>	<b>EASA</b>
<b>Quality System</b>	<b>Quality Control</b>	<b>Quality Assurance</b>
<b>Quality Documents</b>	<b>Repair Station Manual &amp; Quality Control Manual &amp; Training Program Manual</b>	<b>Maintenance Organization Exposition</b>
<b>Personnel</b>	<b>Sub Part D</b>	<b>A145.30, 35</b>
<b>Release to Services</b>	<b>Part 43 (FAA Form 8130)</b>	<b>A145.50 (EASA Form One)</b>

# FAR 145



**Sub-part A  
General**

## **Sub-part A “General”**

### **§ 145.1 Applicability.**

**This part describes:**

- How to obtain a repair station certificate.**
- The rules a certificated repair station must follow related to its performance of:**

**Maintenance, preventive maintenance, or alterations, of an aircraft, airframe, aircraft engine, propeller, appliance, or component part**

**To which FAR 43 applies.**

## Sub-part A “General” (cont.)

### § 145.3 Definition of terms.

#### (a) Accountable Manager means :

The person designated by the certificated repair station who is responsible for and has the authority over all repair station operations that are conducted under part 145, including ensuring, that Repair station personnel follow the regulations and serving as the primary contact with FAA.

#### (b) Article means :

An aircraft, airframe, aircraft engine, propeller, appliance, or component part.



## Sub-part A “General” (cont.)

### § 145.3 Definition of terms (Cont).

#### (c) Directly in charge means :

Having the responsibility for the work of a certificated repair station that performs maintenance preventive maintenance, alterations, or other functions affecting aircraft airworthiness. A person directly in charge does not need to physically observe and direct each worker constantly but must be available for consultation on matters requiring instruction or decision from higher authority.

## **Sub-part A “General” (cont.)**

### **§ 145.3 Definition of terms (Cont).**

**(d) Line maintenance means :**

- 1. Any unscheduled maintenance resulting from unforeseen events; or**
- 2. Scheduled checks that contain servicing and/or inspections that do not require specialized training, equipment, or facilities.**

## Sub-part A “General” (cont.)

### § 145.5 Certificate and operations specifications requirements.

A certified repair station must operate

- In the scope of the specifications associated to that certification
- and
- within the limits of the ratings for which certification apply.

**The certificate and operation specifications issued to a certificated repair station must be made available on the premises for inspection by the public and the FAA.**

**Sub-part B  
certification**

## **Sub-part B “Certification”**

### **§ 145.51 Application for certificate.**

**(a) An application for a repair station certificate must be made available in a format acceptable by the FAA and must include the following:**

- (1) A repair station manual**
- (2) A Quality Control manual**
- (3) A list by type, make, or model, as appropriate, of each article for which the application is made;**
- (4) An organizational chart**
- (5) A description of the housing and facilities including the physical address**
- (6) A list of maintenance functions for approval by the FAA**
- (7) A training program for approval**

## Sub-part B “Certification” (cont.)

### § 145.51 Application for certificate (cont.)

- (b) The equipment, personnel, technical data, and housing and facilities required for the certificate and rating, or for additional rating must be in place for inspection at the time of the certification or rating approval by the FAA.
- The equipment requirement may be met if a contract acceptable to the FAA with another person to make the equipment available to the applicant at the time of the certification and at any time that is necessary when the relevant work is being performed by the repair station.

## **Sub-part B “Certification” (cont.)**

### **§ 145.51 Application for certificate (cont.)**

- (c) An applicant for a repair station certificate and rating located outside the United States, he must show that:**
- (1) The repair station certificate and/or rating is necessary for maintaining or altering the following:**
    - (i) U.S.-registered aircraft and articles for use on registered aircraft, or**
    - (ii) Foreign-registered aircraft operated under the provisions of part 121 or part 135, and articles for use on these aircraft.**
  - (2) The fee prescribed by the FAA has been paid.**

# Sub-part B “Certification” (cont.)

## § 145.51 Application for certificate (cont.)

(d) Application for additional rating, amended, or renewal of a repair station certificate must:

- Be made in a formate acceptable to the FAA.
- Include only that information necessary to substantiate the change or renewal of the certificate.

#additional space is required for any item, attach additional sheets of paper. OMB Approved 2120-0010

U.S. Department of Transportation Federal Aviation Administration		Application for Repair Station Certificate and/or Rating	
<b>1. Repair Station Name, Number, Location and Address</b>		<b>2. Reasons for Submission</b>	
a. Official Name of Station	Number	<input type="checkbox"/> Original Application for Certificate and Rating <input type="checkbox"/> Change in Rating <input type="checkbox"/> Change in Location or Housing and Facilities <input type="checkbox"/> Change in Ownership <input type="checkbox"/> Other (Specify)	
b. Location where business conducted			
c. Official Mailing Address of Repair Station (Number, Street, City, State & ZIP)			
d. Doing Business As:			
<b>3. Ratings Applied for:</b>			
<input type="checkbox"/> Airframe	<input type="checkbox"/> Powerplant	<input type="checkbox"/> Propeller	<input type="checkbox"/> Radio
<input type="checkbox"/> Class 1	<input type="checkbox"/> Class 1	<input type="checkbox"/> Class 1	<input type="checkbox"/> Class 1
<input type="checkbox"/> Class 2	<input type="checkbox"/> Class 2	<input type="checkbox"/> Class 2	<input type="checkbox"/> Class 2
<input type="checkbox"/> Class 3	<input type="checkbox"/> Class 3	<input type="checkbox"/> Class 3	<input type="checkbox"/> Class 3
<input type="checkbox"/> Class 4			<input type="checkbox"/> Class 4
<input type="checkbox"/> Accessories	<input type="checkbox"/> Limited		
<input type="checkbox"/> Class 1	<input type="checkbox"/> Airframe	<input type="checkbox"/> Accessories	<input type="checkbox"/> Rotor Blades
<input type="checkbox"/> Class 2	<input type="checkbox"/> Engine	<input type="checkbox"/> Landing Gear	<input type="checkbox"/> Fabric
<input type="checkbox"/> Class 3	<input type="checkbox"/> Propeller	<input type="checkbox"/> Floats	<input type="checkbox"/> Emergency Equip.
	<input type="checkbox"/> Instrument	<input type="checkbox"/> Radio	<input type="checkbox"/> Non-Dest. Test
<b>4. List of Maintenance Functions Contracted to Outside Agencies:</b>			
<h1>Form 8310-3</h1>			
<b>5. Applicant's Certification</b>			
Name of Owner (include name(s) of individual owner, all partners, or corporation name giving state and date of incorporation)			
I hereby certify that I have been authorize by the repair station identified in Item 1 above to make this application and that statements and attachments hereto are true and correct to the best of my knowledge.			
Date	Authorized Signature	Printed Name of Authorized Signer	Title
<small><b>Agency Display of Estimated Burden:</b> The FAA estimates that the average burden for this report form is 15 minutes per response. You may submit any comments regarding the accuracy of this burden estimate or any suggestions for reducing the burden to the Office of Management and Budget. You may also send comments to the Federal Aviation Administration, Aircraft Maintenance Division, AF-5-300, 800 Independence Avenue, SW, Washington, DC 20591. Attention: OMB number 2120-0010.</small>			
<small>FAA Form 8310-3 (8-08) Supersedes Previous Edition. AFS Electronic Forms System - JAF Form FormFlow - 12/1998. NSN: 0052-00-686-1002</small>			



## **Sub-part B “Certification” (cont.)**

### **§ 145.53 Issue of certificate.**

- (a) A person who meets the requirements are entitled to a repair station certificate with appropriate ratings prescribing such operations specifications and limitations as are necessary in the interest of safety.**

## **Sub-part B “Certification” (cont.)**

### **§ 145.53 Issue of certificate (cont.)**

**(d) Before a repair station certificate can be issued for a repair station that is located outside the United States, the applicant shall certify in writing that:**

**“All employees for the repair station, its contractors, or subcontractors performing a job function concerning the transport of dangerous goods (hazardous material) are trained as outlined in the most current edition of ICAO Technical Instruction for the Safe Transport of Dangerous Goods by Air.**

## Sub-part B “Certification” (cont.)

### § 145.55 Duration and renewal of certificate.

Repair station  
on US territory

(a) Valid until it is

Surrendered,

Suspended, or

Revoked.

Repair station  
outside US territory

(b) Valid 12 months  
(1° approval)  
then 24 months  
unless it is

## **Sub-part B “Certification” (cont.)**

### **§ 145.55 Duration and renewal of certificate (cont.)**

#### **(c) Application for a renewal request must be:**

- (1) Submitted no later than 30 days before the current certificate expires. If the date is not met, procedure in 145.51 must be followed.**
- (2) Sent to the FAA office that has jurisdiction over the certificated repair station.**

#### **(d) The holder of an expired, surrendered, suspended, or revoked certificate must return it to the FAA.**

## **Sub-part B “Certification” (cont.)**

### **§ 145.55 Amendment to or transfer of certificate.**

- (a) Apply for a change in a certificate in a format acceptable to the administrator, and include certification in compliance with 145.53(c) or (d), if not previously submitted.**
  - A change is necessary if the certificate holder:**
    - (1) Changes the location of the repair station, or**
    - (2) Request to add or amend a rating.**
  
- (b) If the holder of a repair station certificate sells or transfers its assets, the new owner must apply for an amended certificate in accordance with 145.51.**

## **Sub-part B “Certification” (cont.)**

### **§ 145.59 Ratings .**

**The following ratings are issued under this subpart:**

**(a) Airframe ratings.**

- (1) Class 1: Composite construction of small aircraft.**
- (2) Class 2: Composite construction of large aircraft.**
- (3) Class 3: All-metal construction of small aircraft.**
- (4) Class 4: All-metal construction of large aircraft.**

## **Sub-part B “Certification” (cont.)**

### **§ 145.59 Ratings (cont.).**

#### **(b) Powerplant ratings.**

- (1) Class 1: Reciprocating engines of 400 horsepower or less.**
- (2) Class 2: Reciprocating engines of more than 400 horsepower.**
- (3) Class 3: Turbine engines.**

#### **(c) Propeller ratings.**

- (1) Class 1: Fixed-pitch and ground adjustable propellers of wood, metal, or composite construction.**
- (2) Class 2: Other propellers, by make.**

## **Sub-part B “Certification” (cont.)**

### **§ 145.59 Ratings (cont.).**

#### **(d) Radio ratings.**

- (1) Class1: Communication equipment. Radio transmitting and/or receiving equipment used in an aircraft to send or receive communications in flight. regardless of carrier frequency or type of modulation used. This equipment includes auxiliary and related aircraft interphone systems, amplifier systems, electrical or electronic intercrew signaling devices, and similar equipment. This equipment does not include equipment used for navigating or aiding navigation of aircraft. equipment used for measuring altitude or terrain clearance, other measuring equipment operated on radio or radar principles, or mechanical, electrical. gyroscopic, or electronic instruments that are a part of communications radio equipment.**



## **Sub-part B “Certification” (cont.)**

### **§ 145.59 Ratings (cont.).**

#### **(d) Radio ratings.**

- (2) Class 2: Navigational equipment. A radio system used in an aircraft for en route or approach navigation. This does not include equipment operated on radar or pulsed radio frequency principles, or equipment used for measuring altitude or terrain clearance.**
  
- (3) Class 3: Radar equipment. An aircraft electronic system operated on radar or pulsed radio frequency principles.**

## **Sub-part B “Certification” (cont.)**

### **§ 145.59 Ratings (cont.).**

#### **(e) Instrument ratings.**

- (1) Class 1: Mechanical.** A diaphragm, bourdon tube, aneroid, optical, or mechanically driven centrifugal instrument used on aircraft or to operate aircraft, including tachometers, airspeed indicators, pressure gauges drift sights, magnetic compasses, altimeters, or similar mechanical instruments.
- (2) Class2: Electrical.** Self-synchronous and electrical-indicating instruments and systems, including remote indicating instruments, cylinder head temperature gauges, or similar electrical instruments.

## **Sub-part B “Certification” (cont.)**

### **§ 145.59 Ratings (cont.).**

#### **(e) Instrument ratings.**

- (3) Class 3: Gyroscopic.** An instrument or system using gyroscopic principles and motivated by air pressure or electrical energy, including automatic pilot control units, turn and bank indicators, directional gyros, and their parts, and flux gate and gyrosyn compasses.
- (4) Class 4: Electronic.** An instrument whose operation depends on electron tubes, transistors, or similar devices, including capacitance type quantity gauges, system amplifiers, and engine analyzers.

## **Sub-part B “Certification” (cont.)**

### **§ 145.59 Ratings (cont.).**

#### **(f) Accessory ratings.**

- (1) Class 1: A mechanical accessory that depends on friction, hydraulics, mechanical linkage, or pneumatic pressure for operation, including aircraft wheel brakes, mechanically driven pumps, carburetors, aircraft wheel assemblies, shock absorber struts and hydraulic servo units.**
- (2) Class 2: An electrical accessory that depends on electrical energy for its operation, and a generator, including starters, voltage regulators, electric motors, electrically driven fuel pumps magnetos, or similar electrical accessories.**

## **Sub-part B “Certification” (cont.)**

### **§ 145.59 Ratings (cont.).**

#### **(f) Accessory ratings.**

**(3) Class 3: An electronic accessory that depends on the use of an electron tube transistor, or similar device, including supercharger, temperature, air conditioning controls, or similar electronic controls.**

## **Sub-part B “Certification” (cont.)**

### **§ 145.61 Limited ratings.**

- (a) The FAA may issue a limited rating to a certificated repair station that maintains or alters only a particular type of airframe, powerplant, propeller, radio. instrument, or accessory, or part thereof, or performs only specialized maintenance requiring equipment and skills not ordinarily performed under other repair station ratings. Such a rating may be limited to a specific model aircraft, engine, or constituent part, or to any number of parts made by a particular manufacturer.**
- (b) The FAA issues limited ratings for-**
- (1) Airframes of a particular make and model;**

## **Sub-part B “Certification” (cont.)**

### **§ 145.61 Limited ratings (cont.).**

- (2) Engines of a particular make and model**
- (3) Propellers of a particular make and model;**
- (4) Instruments of a particular make and model;**
- (5) Radio equipment of a particular make and model;**
- (6) Accessories of a particular make and model;**
- (7) Landing gear components,**
- (8) Floats. by make**
- (9) Nondestructive inspection, testing and processing.**
- (10) Emergency equipment:**
- (11) Rotor blades, by make and model.**
- (12) Aircraft fabric work.**

## **Sub-part B “Certification” (cont.)**

### **§ 145.61 Limited ratings (cont.).**

**(C) For a limited rating for specialized services, the operations specifications of the repair station must contain the specification used to perform the specialized service. The specification may be:**

- (1) A civil or military specification currently used by industry and approved by the FAA, or**
- (2) A specification developed by the applicant and approved by the FAA.**



**Sub-part C  
Housing, Facilities,  
Equipment, Material and  
data**

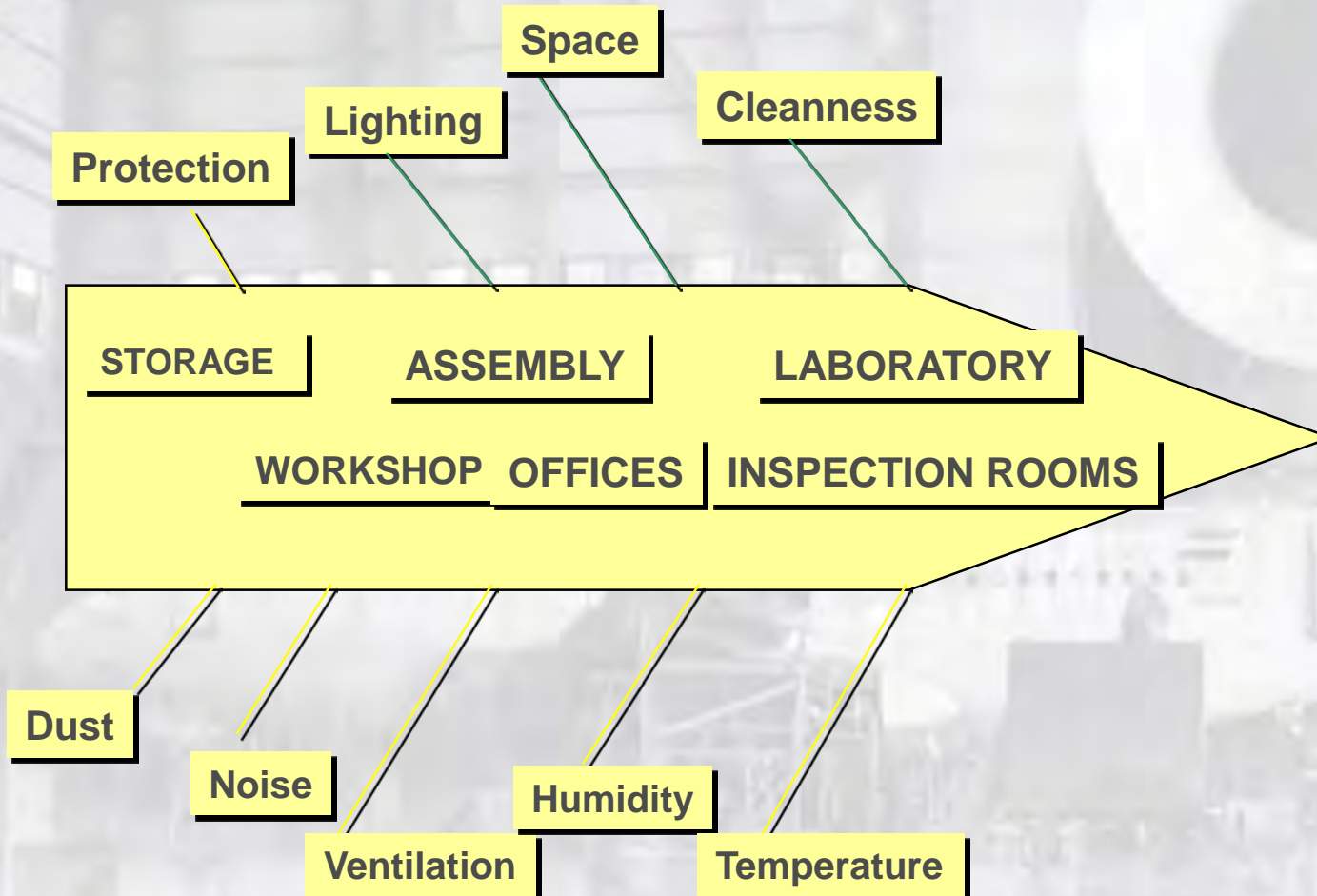
## **Sub Part C Housing, Facilities, Equipment, Material and data**

### **§ 145.101 General**

**A certificated repair station must provide housing, facilities, equipment, materials, and data that meet the applicable requirements for the issuance of the certificate and ratings the repair station holds.**

# Sub Part C Housing, Facilities, Equipment, Material and data (cont.)

## § 145.103 Housing and facilities requirements.



## **Sub Part C Housing, Facilities, Equipment, Material and data (cont.)**

### **§ 145.105 Change of location, housing, or facilities.**

- (a) A certificated repair station may not change the location of its housing without written approval from the FAA.**
- (b) A certificated repair station may not make any changes to its housing or facilities that could have a significant effect on the ability to perform maintenance, preventive maintenance, or alterations without written approval from the FAA.**
- (c) The FAA may prescribe the conditions, including any limitations, under which a certificated repair station must operate while it is changing its location, housing, or facilities.**

## **Sub Part C Housing, Facilities, Equipment, Material and data (cont.)**

### **§ 145.107 satellite repair station.**

- (a) A certificated repair station under the managerial control of another certificated repair station may operate as a satellite repair station with its own certificate issued by the FAA.**

## **Sub Part C Housing, Facilities, Equipment, Material and data (cont.)**

### **§ 145.107 satellite repair station (cont.)**

**A satellite repair station—**

- (1) May not hold a rating not held by the certificated repair station with managerial control;**
- (2) Must meet the requirements for each rating it holds;**
- (3,4) Must submit a:**
  - Repair station manual.**
  - Quality control manual.**

## **Sub Part C Housing, Facilities, Equipment, Material and data (cont.)**

### **§ 145.107 satellite repair station (cont.)**

- (b) Personnel and equipment from the certificated repair station may be shared. However, inspection personnel must be designated for each satellite repair station.**
  
- (c) A satellite repair station may not be located in a country other than the domicile country of the certificated repair station with managerial control**

## **Sub Part C Housing, Facilities, Equipment, Material and data (cont.)**

### **§ 145.109 Equipment, material and data requirements.**

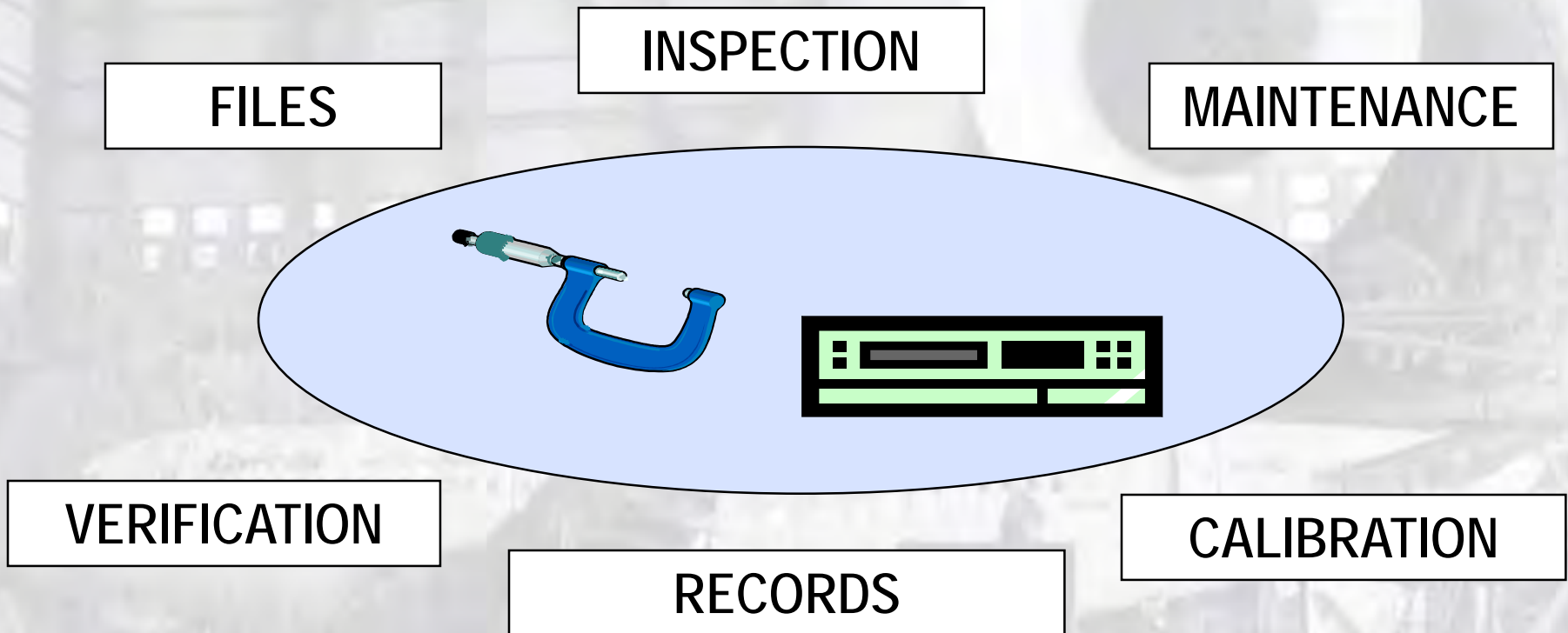
**(a) A certificated repair station must have the equipments, tools and material necessary to perform the maintenance, preventive maintenance, or alterations in accordance with FAA Part 43.**

**- The equipments, tools and material must be located in the premises and under the repair station s control when the work is being done.**



# Sub Part C Housing, Facilities, Equipment, Material and data (cont.)

## § 145.109 Equipment, material and data requirements (cont.)



## **Sub Part C Housing, Facilities, Equipment, Material and data (cont.)**

### **§ 145.109 Equipment, material and data requirements (cont.)**

- (b) Ensure all test and inspection equipments and tools used are calibrated to a standard acceptable to the FAA.**
  
- (c) The equipment, tools, and material must be those recommended or equivalent to those recommended by the manufacturer of the article and acceptable to the FAA.**

## **Sub Part C Housing, Facilities, Equipment, Material and data (cont.)**

### **§ 145.109 Equipment, material and data requirements (cont.)**

**(d) A certified repair station must maintain in a format acceptable to the FAA the documents and data required for the performance of maintenance, preventive maintenance, or alterations in accordance with part 43.**

## **Sub Part C Housing, Facilities, Equipment, Material and data (cont.)**

### **§ 145.109 Equipment, material and data requirements (cont.)**

**The following documents must be current and accessible  
when the work is being done:**

- (1) Airworthiness directives,**
- (2) Instructions for continued airworthiness,**
- (3) Maintenance manuals,**
- (4) Overhaul manuals,**
- (5) Standard practice manuals,**
- (6) Service bulletins, and**
- (7) Other applicable data acceptable to or approved by the  
FAA.**

# Sub-part D Personnel

## **Sub-part D “Personnel”**

### **§ 145.151 Personnel requirements.**

**Certificated repair station must:**

**(a) Designate the accountable manager,**

**(b) Provide qualified personnel to**

**PLAN, SUPERVISE, PERFORM, and APPROVE FOR  
RETURN TO SERVICE**

**the maintenance, preventive maintenance, or alterations  
performed under the repair station certificate and  
operation specifications,**

## Sub-part D “Personnel” (cont.)

### § 145.151 Personnel requirements (cont.)

- (c) Ensure it has a sufficient number of employees with the training or knowledge and experience in the performance of maintenance, preventive maintenance, or alterations authorized by the repair station certificate and operation specifications to ensure all work is performed in accordance with part 43, and**
- (d) Determine the abilities of its non certificated employees performing maintenance functions based on training, knowledge, experience, or practical tests.**

## Sub-part D “Personnel” (cont.)

### § 145.153 Supervisory personnel requirements.

- (a) Sufficient number to direct the work performed under the repair station certificate and operation specifications.
- Oversee the work performed by any individuals who are unfamiliar with the methods, techniques, practices, aids, equipment, and tools used to perform maintenance, preventive maintenance, or alterations.



## Sub-part D “Personnel” (cont.)

### § 145.153 Supervisory personnel requirements (cont.)

(b) Each supervisor must—

(2) If employed by a repair station located outside the United States—

- (i) Have a minimum of 18 months of practical experience in the work being performed, or
- (ii) Be trained in or thoroughly familiar with the methods, techniques, practices, aids, equipment, and tools used to perform maintenance, preventive maintenance, or alterations.

(c) Must understand, read, and write English.

## Sub-part D “Personnel” (cont.)

### § 145.155 Inspection personnel requirements.

- (a) A certificated repair station must ensure that persons performing inspections are—
- (1) Thoroughly familiar with the applicable regulations in this chapter and with the inspection methods, techniques, practices, aids, equipment, and tools used to determine the airworthiness of the article on which maintenance, preventive maintenance, or alterations are being performed, and
  - (2) Proficient in using the various types of inspection equipments and visual inspection aids appropriate for the article being inspected, and
- (c) Must understand, read, and write english.

## Sub-part D “Personnel” (cont.)

### § 145.157 Personnel authorized to approve an article for return to service.

(b) Certificated repair station located outside the United States must ensure that each authorized person is:

- (1) Trained in or has 18 months practical experience with the methods, techniques, practices, aids, equipment, and tools used to perform the maintenance, preventive maintenance, or alterations, and
- (2) Thoroughly familiar with the applicable regulations in this chapter and proficient in the use of the various inspection methods, techniques, practices, aids, equipment, and tools appropriate for the work being performed and approved for return to service.

## **Sub-part D “Personnel” (cont.)**

### **§ 145.157 Personnel authorized to approve an article for return to service (cont.).**

**(c) Must ensure each person authorized to approve an article for return to service understands, reads, and writes English.**

## **Sub-part D “Personnel” (cont.)**

### **§ 145.159 Recommendation of a person for certification as a repair man.**

**A certificated repair station that chooses to use repairman to meet the applicable personnel requirements of this part must certify in a format acceptable to the FAA that each person recommended as a repairman—**

- (a) Is employed by the repair station, and**
- (b) Meets the eligibility requirements of § 65.101.**

## Sub-part D “Personnel” (cont.)

### § 145.161 Records of management, supervisory and inspection personnel.

**(a) A certificated repair station must maintain and make available in a format acceptable to the FAA the following:**

- (1) A roster of management and supervisory personnel includes names of the officials who are responsible for its management and the names of its supervisors who oversee maintenance functions.**
- (2) A roster of the names of all inspection personnel.**
- (3) A roster of personnel authorized to sign a maintenance release for approving a maintained or altered article for return to service.**

## Sub-part D “Personnel” (cont.)

### § 145.161 Records of management, supervisory and inspection personnel (cont.)

- (4) A summary of the employment of each individual whose name is on the personnel rosters. The summary must contain enough information on each individual listed to show compliance with the experience requirements of this part and must include the following:**

## **Sub-part D “Personnel” (cont.)**

### **§ 145.161 Records of management, supervisory, and inspection personnel (cont.)**

- (i) Present title,**
- (ii) Total years of experience and the type of maintenance work performed,**
- (iii) Past relevant employment with names of employers and periods of employment,**
- (iv) Scope of present employment, and**
- (v) The type of mechanic or repairman certificate held and the ratings on that certificate, if applicable.**



## Sub-part D “Personnel” (cont.)

### § 145.161 Records of management, supervisory, and inspection personnel (cont.)

- (b) Within 5 business days of the change, the rosters required by this section must reflect changes caused by termination, reassignment, change in duties or scope of assignment, or addition of personnel**

## Sub-part D “Personnel” (cont.)

### §145.163 Training Requirements

**(a)** A certificated repair station must have an employee training program approved by the FAA that consists of initial and recurrent training.

For purposes of meeting the requirements of this paragraph, beginning April 6, 2006—

- (1)** An applicant for a repair station certificate must submit a training program for approval by the FAA as required by 145.51(a)(7).
- (2)** A repair station certificated before that date must submit its training program to the FAA for approval by the last day of the month in which its repair station certificate was issued.

## Sub-part D “Personnel” (cont.)

### §145.163 Training Requirements (cont.)

- (b) The training program must ensure each employee assigned to perform maintenance, preventive maintenance, or alterations, and inspection functions is capable of performing the assigned task.**
- (c) The certificated repair station must document, in a format acceptable to the FAA the individual employee training required. All training records must be retained for a minimum of 2 years**

## Sub-part D “Personnel” (cont.)

### §145.163 Training Requirements (cont.)

- (d)** A certificated repair station must submit revisions to its training program to its certificate holding district office in accordance with the procedures required by 145.209(e).

## Sub-part D “Personnel” (cont.)

### **§145.165 Hazardous materials training.**

- (a) Each repair station that meets the definition of a hazmat employer under 49 CFR 171.8 must have a hazardous material training program that meets the training requirements of 49 CFR part 172 subpart H.**
- (b) A repair station employee may not perform or directly supervise a job function listed in 121.1001 or 135.501 for, or on behalf of the part 121 or 135 operator including loading of items for transport on an aircraft operated by a part 121 or part 135 certificate holder unless that person has received training in accordance with the part 121 or part 135 operator s FAA approved hazardous materials training program.**

# Sub-part E Operating rules

## Sub-part E Operating rules

### § 145.201 Privileges and limitations of certificate.

(a) A certificated repair station may—

(1) Perform maintenance, preventive maintenance, or alterations in accordance with part 43 on any article for which it is rated and within the limitations in its operations specifications.

(2) Arrange for another person to perform the maintenance, preventive maintenance, or alterations of any article for which the certificated repair station is rated. If that person is not certificated under part 145, the certificated repair station must ensure that the non certificated person follows a quality control system equivalent to the system followed by the certificated repair station.

## Sub-part E Operating rules (cont.)

### § 145.201 Privileges and limitations of certificate (cont.)

- (3) A certificated repair station may approve for return to service any article for which it is rated after it has performed maintenance, preventive maintenance, or an alteration in accordance with part 43.
- (b) A certificated repair station may not maintain or alter any article for which it is not rated, and may not maintain or alter any article for which it is rated if it requires special technical data, equipment, or facilities that are not available to it.



## **Sub-part E Operating rules (cont.)**

### **§ 145.201 Privileges and limitations of certificate (cont.)**

**(c) A certificated repair station may not approve for return to service**

**(1) Any article unless maintenance, preventive maintenance, or alteration was performed in accordance with the applicable approved technical data or data acceptable to the FAA.**

**(2) Any article after a major repair or major alteration unless the major repair or major alteration was performed in accordance with applicable approved technical data, and**

**(3) Any experimental aircraft after a major repair or major alteration performed under 43.1(b) unless the major repair or major alterations was performed in accordance with methods and applicable technical data acceptable to the FAA.**

## Sub-part E Operating rules (cont.)

### §145.203 Work performed at another location

A certificated repair station may temporarily transport material, equipment, and personnel needed to perform maintenance, preventive maintenance, alterations, or certain specialized services on an article for which it is rated to a place other than the repair station's fixed location if the following requirements are met:

- (a) The work is necessary due to a special circumstance, as determined by the FAA; or
- (b) It is necessary to perform such work on a recurring basis, and the repair station's manual includes the procedures for accomplishing maintenance, preventive maintenance, alterations, or specialized services at a place other than the repair station's fixed location

## **Sub-part E Operating rules (cont.)**

**§ 145.205 Maintenance, preventive maintenance, and alterations performed for certificate holders under parts 121, 125, and 135, and for foreign air carriers or foreign persons operating a U.S.-registered aircraft in common carriage under part 129**

**(a) A certificated repair station that performs maintenance, preventive maintenance, or alterations for an air carrier or commercial operator that has a continuous airworthiness maintenance program under part 121 or part 135 must follow the air carrier's or commercial operator's program and applicable sections of its maintenance manual.**

**(b) A certificated repair Station that performs inspections for a certificate holder conducting operations under part 125 must follow the operator's FAA-approved inspection program**

**(c) A certificated repair station that performs maintenance, preventive maintenance, or alterations for a foreign air carrier or foreign person operating a U.S.-registered aircraft under part 129 must follow the operator's FAA-approved maintenance program**

## **Sub-part E Operating rules (cont.)**

**(d) Notwithstanding the housing requirement of §145.103(b), the FAA may grant approval for a certificated repair station to perform line maintenance for an air carrier certificated under part 121 or part 135, or a foreign air carrier or foreign person operating a U.S. registered aircraft in common carriage under part 129 on any aircraft of that air carrier or person, provided-**

- (1) The certificated repair station performs such line maintenance in accordance with the operator's manual, if applicable, and approved maintenance program;**
- (2) The certificated repair station has the necessary equipment, trained personnel, and technical data to perform such line maintenance; and**
- (3) The certificated repair station's operations specifications include an authorization to perform line maintenance.**

## **Sub-part E Operating rules (cont.)**

### **§ 145.206 Notification of hazardous materials authorizations**

- (a) Each repair station must acknowledge receipt of the part 121 or part 135 operator notification required under §§121.1005(e) and 135.505(e) of this chapter prior to performing work for, or on behalf of that certificate holder.**
- (b) Prior to performing work for or on behalf of a part 121 or part 135 operator, each repair station must notify its employees, contractors, or subcontractors that handle or replace aircraft components or other items regulated by 49 CFR parts 171 through 180 of each certificate holder's operations specifications authorization permitting, or prohibition against, carrying hazardous materials. This notification must be provided subsequent to the notification by the part 121 or part 135 operator of such operations specifications authorization/designation.**

## **Sub-part E Operating rules (cont.)**

### **§ 145.207 Repair station manual.**

- (a) A certificated repair station must prepare and follow a repair station manual acceptable to the FAA.**
- (b) A certificated repair station must maintain a current repair station manual.**
- (c) A certificated repair station's current repair station manual must be accessible for use by repair station personnel required by subpart D of this part.**
- (d) A certificated repair station must provide to its certificate holding district office the current repair station manual in a format acceptable to the FAA.**
- (e) A certificated repair station must notify its certificate holding district office of each revision of its repair station manual in accordance with the procedures required by §145.209(j).**

## **Sub-part E Operating rules (cont.)**

### **§ 145.209 Repair station manual contents.**

A certificated repair station's manual most include the following:

**(a) An organizational chart identifying-**

- 1) Each management position with authority to act on behalf of the repair station,**
- 2) The area of responsibility assigned to each management position, and**
- (3) The duties, responsibilities, and authority of each management position.**

**(b) Procedures for maintaining and revising the rosters required by § 145.161:**

**(c) A description of the certificated repair station's operations, including the housing, facilities, equipment, and materials as required by subpart C of this part;**

**(d) Procedures for-**

## **Sub-part E Operating rules (cont.)**

- (1) Revising the capability list provided for in § 145.215 and notifying the certificate holding district office of revisions to the list, including how often the certificate holding district office will be notified of revisions; and**
- (2) The self-evaluation required under § 145.215(c) for revising the capability list, including methods and frequency of such evaluations, and procedures for reporting the results to the appropriate manager for review and action;**
- (e) Procedures for revising the training program required by §145.163 and submitting revisions to the certificate holding district office for approval;**
- (f) Procedures to govern work performed at another location in accordance with § 145.203;**



## **Sub-part E Operating rules (cont.)**

**(h) Procedures for-**

- (1) Maintaining and revising the contract maintenance information required by § 145.217(a)(2)(i), including submitting revisions to the certificate holding district office for approval: and**
- (2) Maintaining and revising the contract maintenance information required by §145.217(a)(2)(ii) and notifying the certificate holding district office of revisions to this information, including how often the certificate holding district office will be notified of revisions:**
  - (i) A description of the required records and the recordkeeping system used to obtain, store, and retrieve the required records;**
  - (j) Procedures for revising the repair station's manual and notifying its certificate holding district office of revisions to the manual, including how often the certificate holding district office will be notified of revisions; and**
  - (k) A description of the system used to identify and control sections of the repair station manual.**

## **Sub-part E Operating rules (cont.)**

### **§ 145.211 Quality control system**

- (a) A certificated repair station must establish and maintain a quality control system acceptable to the FAA that ensures the airworthiness of the articles on which the repair station or any of its contractors performs maintenance, preventive maintenance, or alterations.**
- (b) Repair station personnel must follow the quality control system when performing maintenance, preventive maintenance, or alterations under the repair station certificate and operations specifications.**
- (c) A certificated repair station must prepare and keep current a quality control manual in a format acceptable to the FAA that includes the following:**

## **Sub-part E Operating rules (cont.)**

- (1) A description of the system and procedures used for:
- (i) Inspecting, incoming raw materials to ensure acceptable quality.
  - (ii) Performing preliminary inspection of all articles that are maintained.
  - (iii) Inspecting all articles that have been involved in an accident for hidden damage before maintenance, preventive maintenance, or alteration is performed.
  - (iv) Establishing and maintaining proficiency of inspection personnel.
  - (v) Establishing and maintaining current technical data for maintaining articles.
  - (vi) Qualifying and surveilling non certificated persons who perform maintenance, prevention maintenance, or alterations for the repair station.
  - (vii) Performing final inspection and return to service of maintained articles.
  - (viii) Calibrating measuring and test equipment used in maintaining articles, including the intervals at which the equipment will be calibrated; and
  - (ix) Taking corrective action on deficiencies.

## **Sub-part E Operating rules (cont.)**

- (2) References, where applicable, to the manufacturer's inspection standards for a particular article, including reference to any data specified by that manufacturer.**
  - (3) A sample of the inspection and maintenance forms and instructions for completing such forms or a reference to a separate forms manual; and**
  - (4) Procedures for revising the quality control manual required under this section and notifying the certificate holding district office of the revisions, including how often the certificate holding district office will be notified of revisions.**
- (d) A certificated repair station must notify its certificate holding district office of revisions to its quality control manual.**

## **Sub-part E Operating rules (cont.)**

### **§ 145.213 Inspection of maintenance, preventive maintenance, or alterations.**

- (a) A certificated repair station must inspect each article upon which it has performed maintenance, preventive maintenance, or alterations as described in paragraphs (b) and, (c.) of this section before approving that article for return to service.**
- (b) A certificated repair station must certify on an article's maintenance release that the article is airworthy with respect to the maintenance, preventive maintenance, or alterations performed after:**
  - (1) The repair station performs work on the article; and**
  - (2) An inspector inspects the article on which the repair station has performed work and determines it to be airworthy with respect to the work performed.**

## **Sub-part E Operating rules (cont.)**

### **§ 145.213 Inspection of maintenance, preventive maintenance, or alterations (cont).**

**(c) For the purposes of paragraphs (a) and (b) of this section an inspector must meet the requirements of § 145.155.**

**(d) Except for individuals employed by a repair station located outside the United States, only an employee certificated under part 65 is authorized to sign off on final inspections and maintenance releases for the repair station.**

## Sub-part E Operating rules (cont.)

### § 145.215 Capability list.

- (a) A certificated repair station with a limited rating may perform maintenance, preventive maintenance, or alterations on an article if the article is listed on a current capability list acceptable to the FAA or on the repair station's operations specifications.
- (b) The capability list must identify each article by make and model or other nomenclature designated by the article's manufacturer and be available in a format acceptable to the FAA.

## **Sub-part E Operating rules (cont.)**

### **§ 145.215 Capability list (cont.).**

- (c) An article may be listed on the capability list only if the article is within the scope of the ratings of the repair station's certificate, and only after the repair station has performed a self-evaluation in accordance with the procedures under §145.209(d)(2). The repair station must perform this self-evaluation to determine that the repair station has all of the housing, facilities, equipment, material, technical data, processes, and trained personnel in place to perform the work on the article as required by part 145. The repair station must retain on file documentation of the evaluation.
- (d) Upon listing an additional article on its capability list, the repair station must provide its certificate holding district office with a copy of the revised list in accordance with the procedures required in §145.209(4)(1).



## **Sub-part E Operating rules (cont.)**

### **§ 145.217 Contract maintenance**

**(a) A certificated repair station may contract a maintenance function pertaining to an article to an outside source provided:**

- (1) The FAA approves the maintenance function to be contracted to the outside source; and**
- (2) The repair station maintains and makes available to its certificate holding district office, in a format acceptable to the FAA, the following information:**
  - (i) The maintenance functions contracted to each outside facility, and**
  - (ii) The name of each outside facility to whom the repair station contracts maintenance functions and the type of certificate and ratings, if any, held by each facility.**

## **Sub-part E Operating rules (cont.)**

- (b) A certificated repair station may contract a maintenance function pertaining to an article to a non certificated person provided-**
- 1) The non certificated person follows a quality control system equivalent to the system followed by the certificated repair station:**
  - 2) The certificated repair station remains directly in charge of the work performed by the non certificated person: and**
  - 3) The certificated repair station verifies, by test and/or inspection, that the work has been performed satisfactorily by the non certificated person and that the article is airworthy before approving it for return to service.**
- (c) A certificated repair station may not provide only approval for return to service of a complete type-certificated product following contract maintenance, preventive maintenance, or alterations.**

## **Sub-part E Operating rules (cont.)**

### **§ 145.219 Recordkeeping**

- (a) A certificated repair station must retain records in English that demonstrate compliance with the requirements of part 43. The records must be retained in a format acceptable to the FAA.**
- (b) A certificated repair station must provide a copy of the maintenance release to the owner or operator of the article on which the maintenance, preventive maintenance, or alteration was performed.**
- (c) A certificated repair station must retain the records required by this section for at least 2 years from the date the article was approved for return to service.**
- (d) A certificated repair station must make all required records available for inspection by the FAA and the National Transportation Safety Board.**

## **Sub-part E Operating rules (cont.)**

### **§ 145.221 Service difficulty reports**

- (a) A certificated repair station must report to the FAA within 96 hours after it discovers any serious failure, malfunction, or defect of an article. The report must be in a format acceptable to the FAA.**
- (b) The report required under paragraph (a) of this section must include as much of the following information as is available:**
  - (1) Aircraft registration number.**
  - (2) Type, make, and model of the article.**
  - (3) Date of the discovery of the failure, malfunction, or defect.**
  - (4) Nature of the failure, malfunction, or defect.**
  - (5) Time since last overhaul, if applicable.**
  - (6) Apparent cause of the failure, malfunction, or defect: and**
  - (7) Other pertinent information that is necessary for more complete identification, determination of seriousness, or corrective action**

## **Sub-part E Operating rules (cont.)**

### **§ 145.221 Service difficulty reports (cont.)**

- (c) The holder of a repair station certificate that is also the holder of a part 121, 125, or 135 certificate, type certificate (including a supplemental type certificate), parts manufacturer approval; or technical standard order authorization, or that is the licensee of a type certificate holder, does not need to report a failure, malfunction, or defect under this section if the failure, malfunction, or defect has been reported under parts 21, 121, 125, or 135 of this chapter.

## **Sub-part E Operating rules (cont.)**

### **§ 145.221 Service difficulty reports (cont.)**

- (d) A certificated repair station may submit a service difficulty report for the following:
- (1) A part 121 certificate holder, provided the report meets the requirements of part 121 of this chapter, as appropriate.
  - (2) A part 125 certificate holder, provided the report meets the requirements of part 125 of this chapter, as appropriate.
  - (3) A part 135 certificate holder, provided the report meets the requirements of part 135 of the chapter, as appropriate.
- (e) A certificated repair station authorized to report a failure, malfunction, or defect under paragraph (d) of this section must not report the same failure, malfunction, or defect under paragraph (a) of this section. A copy of the report submitted under paragraph (d) of this section must be forwarded to the certificate holder.

## Sub-part E Operating rules (cont.)

### 145.223 FAA inspections

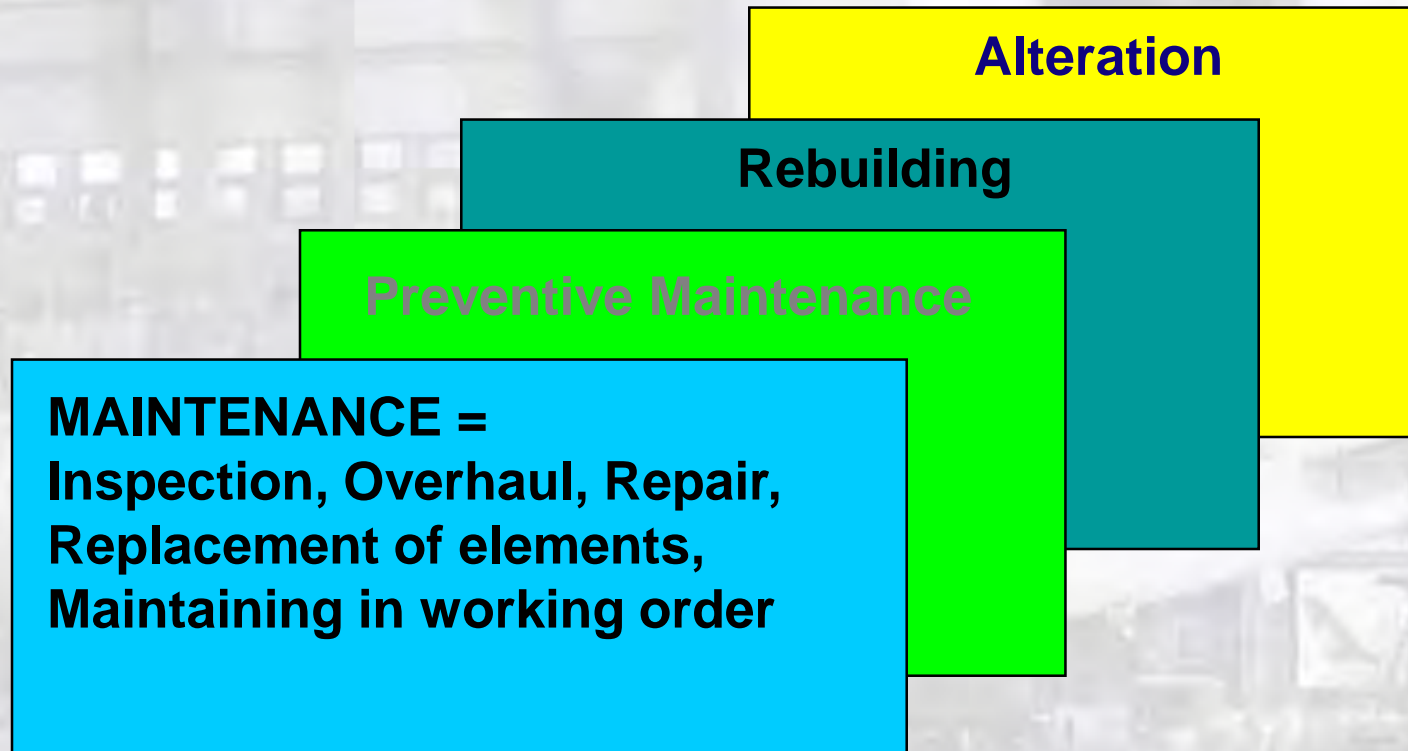
- (a) A certificated repair station must allow the FAA to inspect that repair station at any time to determine compliance with this chapter.
- (b) A certificated repair station may not contract for the performance of a maintenance function on an article with a non certificated person unless it provides in its contract with the non certificated person that the FAA may make an inspection and observe the performance of the non certificated person's work on the article.
- (c) A certificated repair station' may not return to service any article on which a maintenance function was performed by a non certificated person if the non certificated person does not permit the FAA to make the inspection described in paragraph (b) of this section.

# Part 43



# Part 43

## Rules governing



## Part 43 (cont.)

- §43.1** Applicability.
- §43.2** Records of overhaul and rebuilding.
- §43.3** Persons authorized to perform maintenance, preventive maintenance, rebuilding, and alterations.
- §43.5** Approval for return to service after maintenance, preventive maintenance, rebuilding, or alteration.
- §43.7** Persons authorized to approve aircraft, airframes, aircraft engines, propellers, appliances, or component parts for return to service after maintenance, preventive maintenance, rebuilding, or alteration.

## **Part 43 (cont.)**

- §43.9** Content, form, and disposition of maintenance, preventive maintenance, rebuilding, and alteration records (except inspections performed in accordance with part 91, part 125, 135.411(a)(1), and 135.419 of this chapter).
- §43.10** Disposition of life-limited aircraft parts.
- §43.11** Content, form, and disposition of records for inspections conducted under parts 91 and 125 and 135.411(a)(1) and 135.419 of this chapter.
- §43.12** Maintenance records: Falsification, reproduction, or alteration.

## **Part 43 (cont.)**

- §43.13 Performance rules (general).**
- §43.15 Additional performance rules for inspections.**
- §43.16 Airworthiness limitations.**
- §43.17 Maintenance, preventive maintenance, and alterations performed on U.S. aeronautical products by certain Canadian persons.**
- Appendix A to Part 43 --Major Alterations, Major Repairs, and Preventive Maintenance**
- Appendix B to Part 43 --Recording of Major Repairs and Major Alterations**
- Appendix C to Part 43 -- [Reserved]**

## **Part 43 (cont.)**

**Appendix D to Part 43 --Scope and Detail of Items (as Applicable to the Particular Aircraft) To Be Included in Annual and 100-Hour Inspections**

**Appendix E to Part 43 --Altimeter System Test and Inspection**

**Appendix F to Part 43 --ATC Transponder Tests and Inspections**

## Part 43 (cont.)

### §43.1 Applicability.

**(a)** Except as provided in paragraphs (b) and (d) of this section, this part prescribes rules governing the maintenance, preventive maintenance, rebuilding, and alteration of any—

- (1)** Aircraft having a U.S. airworthiness certificate;
- (2)** Foreign-registered civil aircraft used in common carriage or carriage of mail under the provisions of Part 121 or 135 of this chapter; and
- (3)** Airframe, aircraft engines, propellers, appliances, and component parts of such aircraft.

## Part 43 (cont.)

### §43.1 Applicability (cont.)

(b) N/A.

(c) This part applies to all life-limited parts that are removed from a type certificated product, segregated, or controlled as provided in §43.10.

(d) N/A.

## Part 43 (cont.)

### §43.2 Records of overhaul and rebuilding.

- (a) No person may DESCRIBE in any required maintenance entry or form an aircraft, airframe, aircraft engine, propeller, appliance, or component part as being overhauled unless—
- (1) Using methods, techniques, and practices acceptable to the Administrator, it has been disassembled, cleaned, inspected, repaired as necessary, and reassembled; and
  - (2) It has been tested in accordance with approved standards and technical data, or in accordance with current standards and technical data acceptable to the Administrator, which have been developed and documented by the holder of the type certificate, supplemental type certificate, or a material, part, process, or appliance approval under §21.305 of this chapter.



## **Part 43 (cont.)**

### **§43.2 Records of overhaul and rebuilding (cont.)**

**(b) No person may DESCRIBE in any required maintenance entry or form an aircraft, airframe, aircraft engine, propeller, appliance, or component part as being rebuilt unless it has been disassembled, cleaned, inspected, repaired as necessary, reassembled, and tested to the same tolerances and limits as a new item, using either new parts or used parts that either conform to new part tolerances and limits or to approved oversized or undersized dimensions.**

## Part 43 (cont.)

### §43.3 Persons authorized to perform maintenance, preventive maintenance, rebuilding, and alterations.

- (a) Except as provided in this section and §43.17, no person may maintain, rebuild, alter, or perform preventive maintenance on an aircraft, airframe, aircraft engine, propeller, appliance, or component part to which this part applies. Those items, the performance of which is a major alteration, a major repair, or preventive maintenance, are listed in appendix A.
- (b) The holder of a mechanic certificate may perform maintenance, preventive maintenance, and alterations as provided in Part 65 of this chapter.
- (c) The holder of a repairman certificate may perform maintenance, preventive maintenance, and alterations as provided in part 65 of this chapter.

## **Part 43 (cont.)**

### **§43.3 Persons authorized to perform maintenance, preventive maintenance, rebuilding, and alterations (cont.)**

**(d)** A person working under the supervision of a holder of a mechanic or repairman certificate may perform **the maintenance, preventive maintenance, and alterations that his supervisor is authorized to perform**, if the supervisor personally observes the work being done to the extent necessary to ensure that it is being done properly and if the supervisor is readily available, in person, for consultation. **However, this paragraph does not authorize the performance of any inspection required by Part 91 or Part 125 of this chapter or any inspection performed after a major repair or alteration.**

## Part 43 (cont.)

### §43.3 Persons authorized to perform maintenance, preventive maintenance, rebuilding, and alterations (cont.)

(e) The holder of a repair station certificate may perform **maintenance, preventive maintenance, and alterations** as provided in Part 145 of this chapter.

(f), (g), (h), and (i) Are not applicable.

## Part 43 (cont.)

### §43.3 Persons authorized to perform maintenance, preventive maintenance, rebuilding, and alterations (cont.)

(j) A manufacturer may—

- (1) Rebuild or alter any aircraft, aircraft engine, propeller, or appliance manufactured by him under a type or production certificate;
- (2) Rebuild or alter any appliance or part of aircraft, aircraft engines, propellers, or appliances manufactured by him under a Technical Standard Order Authorization, an FAA-Parts Manufacturer Approval, or Product and Process Specification issued by the Administrator; and
- (3) Perform any inspection required by Part 91 or Part 125 of this chapter on aircraft it manufactures, while currently operating under a production certificate or under a currently approved production inspection system for such aircraft.

## Part 43 (cont.)

### §43.5 Approval for return to service after maintenance, preventive maintenance, rebuilding, or alteration.

No person may APPROVE FOR RETURN TO SERVICE any aircraft, airframe, aircraft engine, propeller, or appliance, that has undergone maintenance, preventive maintenance, rebuilding, or alteration unless—

- (a) The maintenance record entry required by §43.9 or §43.11, as appropriate, has been made;
- (b) The repair or alteration form authorized by or furnished by the Administrator has been executed in a manner prescribed by the Administrator; and

## Part 43 (cont.)

### §43.5 Approval for return to service after maintenance, preventive maintenance, rebuilding, or alteration (cont.)

(c) If a repair or an alteration results in any change in the aircraft operating limitations or flight data contained in the approved aircraft flight manual, those operating limitations or flight data are appropriately revised and set forth as prescribed in §91.9 of this chapter.

## Part 43 (cont.)

**§43.7 Persons authorized to approve aircraft, airframes, aircraft engines, propellers, appliances, or component parts for return to service after maintenance, preventive maintenance, rebuilding, or alteration.**

**(a) Except as provided in this section and §43.17, no person, other than the Administrator, may approve an aircraft, airframe, aircraft engine, propeller, appliance, or component part for return to service after it has undergone maintenance, preventive maintenance, rebuilding, or alteration.**

**(b) The holder of a mechanic certificate or an inspection authorization may approve an aircraft, airframe, aircraft engine, propeller, appliance, or component part for return to service as provided in Part 65 of this chapter.**



## Part 43 (cont.)

**§43.7 Persons authorized to approve aircraft, airframes, aircraft engines, propellers, appliances, or component parts for return to service after maintenance, preventive maintenance, rebuilding, or alteration (cont.)**

**(d)** A manufacturer may approve for return to service **any aircraft, airframe, aircraft engine, propeller, appliance, or component part** which that manufacturer has worked on under §43.3(j). **However, except for minor alterations**, the work must have been done in accordance with technical data approved by the Administrator.

**(c)** The holder of a repair station certificate may approve **an aircraft, airframe, aircraft engine, propeller, appliance, or component part** for return to service as provided in Part 145 of this chapter.

## Part 43 (cont.)

### §43.7 Persons authorized to approve aircraft, airframes, aircraft engines, propellers, appliances, or component parts for return to service after maintenance, preventive maintenance, rebuilding, or alteration (cont.)

(e) The holder of an air carrier operating certificate or an operating certificate issued under Part 121 or 135, may approve **an aircraft, airframe, aircraft engine, propeller, appliance, or component part for return to service** as provided in Part 121 or 135 of this chapter, as applicable.

(f) A person holding at least a private pilot certificate may approve **an aircraft for return to service** after performing preventive maintenance under the provisions of §43.3(g).

## Part 43 (cont.)

**§43.7 Persons authorized to approve aircraft, airframes, aircraft engines, propellers, appliances, or component parts for return to service after maintenance, preventive maintenance, rebuilding, or alteration (cont.)**

**(g)** The holder of a repairman certificate (light-sport aircraft) with a maintenance rating may approve **an aircraft issued a special airworthiness certificate in light-sport category for return to service, as provided in part 65 of this chapter.**

**(h)** The holder of at least a sport pilot certificate may approve **an aircraft owned or operated by that pilot and issued a special airworthiness certificate in the light-sport category for return to service after performing preventive maintenance under the provisions of §43.3(g).**

## Part 43 (cont.)

**§43.9 Content, form, and disposition of maintenance, preventive maintenance, rebuilding, and alteration records (except inspections performed in accordance with part 91, part 125, 135.411(a)(1), and 135.419 of this chapter).**

**(a) Maintenance record entries. Except as provided in paragraphs (b) and (c) of this section, each person who maintains, performs preventive maintenance, rebuilds, or alters an aircraft, airframe, aircraft engine, propeller, appliance, or component part shall make an entry in the maintenance record of that equipment containing the following information:**

## Part 43 (cont.)

### **§43.9 Content, form, and disposition of maintenance, preventive maintenance, rebuilding, and alteration records (except inspections performed in accordance with part 91, part 125, 135.411(a)(1), and 135.419 of this chapter) (cont.)**

- (1) A description (or reference to data acceptable to the Administrator) of work performed.**
- (2) The date of completion of the work performed.**
- (3) The name of the person performing the work if other than the person specified in paragraph (a)(4) of this section.**

## Part 43 (cont.)

**§43.9 Content, form, and disposition of maintenance, preventive maintenance, rebuilding, and alteration records (except inspections performed in accordance with part 91, part 125, 135.411(a)(1), and 135.419 of this chapter) (cont.)**

**(4) If the work performed on the aircraft, airframe, aircraft engine, propeller, appliance, or component part has been performed satisfactorily, the signature, certificate number, and kind of certificate held by the person approving the work.**

**The signature constitutes the approval for return to service only for the work performed.**

## Part 43 (cont.)

**§43.9 Content, form, and disposition of maintenance, preventive maintenance, rebuilding, and alteration records (except inspections performed in accordance with part 91, part 125, 135.411(a)(1), and 135.419 of this chapter) (cont.)**

**(b) Each holder of an air carrier operating certificate or an operating certificate issued under Part 121 or 135, that is required by its approved operations specifications to provide for a continuous airworthiness maintenance program, shall make a record of the maintenance, preventive maintenance, rebuilding, and alteration, on aircraft, airframes, aircraft engines, propellers, appliances, or component parts which it operates in accordance with the applicable provisions of Part 121 or 135 of this chapter, as appropriate.**

## Part 43 (cont.)

**§43.9 Content, form, and disposition of maintenance, preventive maintenance, rebuilding, and alteration records (except inspections performed in accordance with part 91, part 125, 135.411(a)(1), and 135.419 of this chapter) (cont.)**

**(c) This section does not apply to persons performing inspections in accordance with Part 91, 125, §135.411(a)(1), or §135.419 of this chapter.**

**(d) In addition to the entry required by paragraph (a) of this section, major repairs and major alterations shall be entered on a form, and the form disposed of, in the manner prescribed in appendix B, by the person performing the work.**



## Part 43 (cont.)

### §43.10 Disposition of life-limited aircraft parts.

**(a) Definitions used in this section. For the purposes of this section the following definitions apply.**

***Life-limited part means any part for which a mandatory replacement limit is specified in the type design, the Instructions for Continued Airworthiness, or the maintenance manual.***

***Life status means the accumulated cycles, hours, or any other mandatory replacement limit of a life-limited part.***

## **Part 43 (cont.)**

### **§43.10 Disposition of life-limited aircraft parts (cont.)**

**(b) Temporary removal of parts from type-certificated products. When a life-limited part is temporarily removed and reinstalled for the purpose of performing maintenance, no disposition under paragraph (c) of this section is required if—**

- (1) The life status of the part has not changed;**
- (2) The removal and reinstallation is performed on the same serial numbered product; and**
- (3) That product does not accumulate time in service while the part is removed.**

## Part 43 (cont.)

### §43.10 Disposition of life-limited aircraft parts (cont.)

(c) *Disposition of parts removed from type-certificated products. Except as provided in paragraph (b) of this section, after April 15, 2002 each person who removes a life-limited part from a type-certificated product must ensure that the part is controlled using one of the methods in this paragraph. The method must deter the installation of the part after it has reached its life limit. Acceptable methods include:*

(1) *Record keeping system. The part may be controlled using a record keeping system that substantiates the part number, serial number, and current life status of the part. Each time the part is removed from a type certificated product, the record must be updated with the current life status. This system may include electronic, paper, or other means of record keeping.*

## Part 43 (cont.)

### §43.10 Disposition of life-limited aircraft parts (cont.)

**(2) Tag or record attached to part.** *A tag or other record may be attached to the part. The tag or record must include the part number, serial number, and current life status of the part. Each time the part is removed from a type certificated product, either a new tag or record must be created, or the existing tag or record must be updated with the current life status.*

**(3) Non-permanent marking.** *The part may be legibly marked using a non-permanent method showing its current life status. The life status must be updated each time the part is removed from a type certificated product, or if the mark is removed, another method in this section may be used. The mark must be accomplished in accordance with the instructions under §45.16 of this chapter in order to maintain the integrity of the part.*

## Part 43 (cont.)

### §43.10 Disposition of life-limited aircraft parts (cont.)

**(4) Permanent marking.** *The part may be legibly marked using a permanent method showing its current life status. The life status must be updated each time the part is removed from a type certificated product. Unless the part is permanently removed from use on type certificated products, this permanent mark must be accomplished in accordance with the instructions under §45.16 of this chapter in order to maintain the integrity of the part.*

**(5) Segregation.** *The part may be segregated using methods that deter its installation on a type-certificated product. These methods must include, at least—*

**(i)** Maintaining a record of the part number, serial number, and current life status, and

**(ii)** Ensuring the part is physically stored separately from parts that are currently eligible for installation.

## Part 43 (cont.)

### §43.10 Disposition of life-limited aircraft parts.

**(6) Mutilation.** *The part may be mutilated to deter its installation in a type certificated produce. The mutilation must render the part beyond repair and incapable of being reworked to appear to be airworthy.*

**(7) Other methods.** *Any other method approved or accepted by the FAA.*

**(d) Transfer of life-limited parts.** *Each person who removes a life-limited part from a type certificated product and later sells or otherwise transfers that part must transfer with the part the mark, tag, or other record used to comply with this section, unless the part is mutilated before it is sold or transferred.*

## **Part 43 (cont.)**

**§43.11 Content, form, and disposition of records for inspections conducted under parts 91 and 125 and 135.411(a)(1) and 135.419 of this chapter.**

**(a) *Maintenance record entries.* The person approving or disapproving for return to service an aircraft, airframe, aircraft engine, propeller, appliance, or component part after any inspection performed in accordance with part 91, 125, §135.411(a)(1), or §135.419 shall make an entry in the maintenance record of that equipment containing the following information:**

- (1) The type of inspection and a brief description of the extent of the inspection.**
- (2) The date of the inspection and aircraft total time in service.**

## Part 43 (cont.)

### §43.11 Content, form, and disposition of records for inspections conducted under parts 91 and 125 and 135.411(a)(1) and 135.419 of this chapter (cont.)

(3) The signature, the certificate number, and kind of certificate held by the person approving or disapproving for return to service **the aircraft, airframe, aircraft engine, propeller, appliance, component part, or portions thereof.**

(4) Except for progressive inspections, **if the aircraft is found to be airworthy and approved for return to service, the following or a similarly worded statement—**“I certify that this aircraft has been inspected in accordance with (insert type) inspection and was determined to be in airworthy condition.”



## **Part 43 (cont.)**

### **§43.11 Content, form, and disposition of records for inspections conducted under parts 91 and 125 and 135.411(a)(1) and 135.419 of this chapter (cont.)**

**(5) Except for progressive inspections, if the aircraft is not approved for return to service because of needed maintenance, noncompliance with applicable specifications, airworthiness directives, or other approved data, the following or a similarly worded statement—“I certify that this aircraft has been inspected in accordance with (insert type) inspection and a list of discrepancies and unairworthy items dated (date) has been provided for the aircraft owner or operator.”**

## **Part 43 (cont.)**

### **§43.11 Content, form, and disposition of records for inspections conducted under parts 91 and 125 and 135.411(a)(1) and 135.419 of this chapter (cont.)**

**(6) For progressive inspections, the following or a similarly worded statement—“I certify that in accordance with a progressive inspection program, a routine inspection of (identify whether aircraft or components) and a detailed inspection of (identify components) were performed and the (aircraft or components) are (approved or disapproved) for return to service.” If disapproved, the entry will further state “and a list of discrepancies and unairworthy items dated (date) has been provided to the aircraft owner or operator.”**

## Part 43 (cont.)

**§43.11 Content, form, and disposition of records for inspections conducted under parts 91 and 125 and 135.411(a)(1) and 135.419 of this chapter (cont.)**

**(7) If an inspection is conducted under an inspection program provided for in part 91, 125, or §135.411(a)(1), the entry must identify the inspection program, that part of the inspection program accomplished, and contain a statement that the inspection was performed in accordance with the inspections and procedures for that particular program.**

## Part 43 (cont.)

**§43.11 Content, form, and disposition of records for inspections conducted under parts 91 and 125 and 135.411(a)(1) and 135.419 of this chapter (cont.)**

**(b) Listing of discrepancies and placards. If the person performing any inspection required by part 91 or 125 or §135.411(a)(1) of this chapter finds that the aircraft is unairworthy or does not meet the applicable type certificate data, airworthiness directives, or other approved data upon which its airworthiness depends, that persons must give the owner or lessee a signed and dated list of those discrepancies.**

## Part 43 (cont.)

**§43.11 Content, form, and disposition of records for inspections conducted under parts 91 and 125 and 135.411(a)(1) and 135.419 of this chapter (cont.)**

**(b) ----- . For those items permitted to be inoperative under §91.213(d)(2) of this chapter, that person shall place a placard, that meets the aircraft's airworthiness certification regulations, on each inoperative instrument and the cockpit control of each item of inoperative equipment, marking it "Inoperative," and shall add the items to the signed and dated list of discrepancies given to the owner or lessee.**

## Part 43 (cont.)

### §43.12 Maintenance records: Falsification, reproduction, or alteration.

- (a) No person may make or cause to be made:
  - (1) Any fraudulent or intentionally false entry in any record or report that is required to be made, kept, or used to show compliance with any requirement under this part;
  - (2) Any reproduction, for fraudulent purpose, of any record or report under this part; or
  - (3) Any alteration, for fraudulent purpose, of any record or report under this part.

## Part 43 (cont.)

### §43.12 Maintenance records: Falsification, reproduction, or Alteration (cont.)

**(b) The commission by any person of an act prohibited under paragraph (a) of this section is a basis for suspending or revoking the applicable airman, operator, or production certificate, Technical Standard Order Authorization, FAA-Parts Manufacturer Approval, or Product and Process Specification issued by the Administrator and held by that person.**

## **Part 43 (cont.)**

### **§43.13 Performance rules (general).**

**(a) Each person performing maintenance, alteration, or preventive maintenance on an aircraft, engine, propeller, or appliance shall use the methods, techniques, and practices prescribed in the current manufacturer's maintenance manual or Instructions for Continued Airworthiness prepared by its manufacturer, or other methods, techniques, and practices acceptable to the Administrator, except as noted in §43.16. He shall use the tools, equipment, and test apparatus necessary to assure completion of the work in accordance with accepted industry practices. If special equipment or test apparatus is recommended by the manufacturer involved, he must use that equipment or apparatus or its equivalent acceptable to the Administrator.**



## **Part 43 (cont.)**

### **§43.13 Performance rules (general) (cont.)**

**(b) Each person maintaining or altering, or performing preventive maintenance, shall do that work in such a manner and use materials of such a quality, that the condition of the aircraft, airframe, aircraft engine, propeller, or appliance worked on will be at least equal to its original or properly altered condition (with regard to aerodynamic function, structural strength, resistance to vibration and deterioration, and other qualities affecting airworthiness).**

## **Part 43 (cont.)**

### **§43.13 Performance rules (general) (cont.)**

***(c) Special provisions for holders of air carrier operating certificates and operating certificates issued under the provisions of Part 121 or 135 and Part 129 operators holding operations specifications. Unless otherwise notified by the administrator, the methods, techniques, and practices contained in the maintenance manual or the maintenance part of the manual of the holder of an air carrier operating certificate or an operating certificate under Part 121 or 135 and Part 129 operators holding operations specifications (that is required by its operating specifications to provide a continuous airworthiness maintenance and inspection program) constitute acceptable means of compliance with this section.***

## Part 43 (cont.)

### §43.15 Additional performance rules for inspections.

- (a) General.** Each person performing an inspection required by part 91, 125, or 135 of this chapter, shall:
- (1)** Perform the inspection so as to determine whether the aircraft, or portion(s) thereof under inspection, meets all applicable airworthiness requirements; and
  - (2)** If the inspection is one provided for in part 125, 135, or §91.409(e) of this chapter, perform the inspection in accordance with the instructions and procedures set forth in the inspection program for the aircraft being inspected.

## Part 43 (cont.)

### §43.15 Additional performance rules for inspections (cont.).

**(b) Rotorcraft.** Each person performing an inspection required by Part 91 on a rotorcraft shall inspect the following systems in accordance with the maintenance manual or Instructions for Continued Airworthiness of the manufacturer concerned:

- (1) The drive shafts or similar systems.**
- (2) The main rotor transmission gear box for obvious defects.**
- (3) The main rotor and center section (or the equivalent area).**
- (4) The auxiliary rotor on helicopters.**

## **Part 43 (cont.)**

### **§43.15 Additional performance rules for inspections (cont.).**

#### **(c) Annual and 100-hour inspections.**

**(1) Each person performing an annual or 100-hour inspection shall use a checklist while performing the inspection. The checklist may be of the person's own design, one provided by the manufacturer of the equipment being inspected or one obtained from another source. This checklist must include the scope and detail of the items contained in appendix D to this part and paragraph (b) of this section.**

## Part 43 (cont.)

### §43.15 Additional performance rules for inspections (cont.).

**(2) Each person approving a reciprocating-engine-powered aircraft for return to service after an annual or 100-hour inspection shall, before that approval, run the aircraft engine or engines to determine satisfactory performance in accordance with the manufacturer's recommendations of:**

- (i) Power output (static and idle r.p.m.);**
- (ii) Magnetos;**
- (iii) Fuel and oil pressure; and**
- (iv) Cylinder and oil temperature.**

## Part 43 (cont.)

### §43.15 Additional performance rules for inspections (cont.).

**(3) Each person approving a turbine-engine-powered aircraft for return to service after an annual, 100-hour, or progressive inspection shall, before that approval, run the aircraft engine or engines to determine satisfactory performance in accordance with the manufacturer's recommendations.**

## Part 43 (cont.)

### §43.15 Additional performance rules for inspections (cont.).

#### (d) *Progressive inspection.*

- (1) Each person performing a progressive inspection shall, at the start of a progressive inspection system, inspect the aircraft completely.

After this initial inspection, routine and detailed inspections must be conducted as prescribed in the progressive inspection schedule.

Routine inspections consist of visual examination or check of the appliances, the aircraft, and its components and systems, insofar as practicable without disassembly.



## **Part 43 (cont.)**

### **§43.15 Additional performance rules for inspections (cont.).**

Detailed inspections consist of a thorough examination of the appliances, the aircraft, and its components and systems, with such disassembly as is necessary. For the purposes of this subparagraph, the overhaul of a component or system is considered to be a detailed inspection.

(2) If the aircraft is away from the station where inspections are normally conducted, an appropriately rated mechanic, a certificated repair station, or the manufacturer of the aircraft may perform inspections in accordance with the procedures and using the forms of the person who would otherwise perform the inspection.

## **Part 43 (cont.)**

### **§43.16 Airworthiness limitations.**

Each person performing **an inspection or other maintenance** specified in an Airworthiness Limitations section of a manufacturer's maintenance manual or Instructions for Continued Airworthiness **shall perform the inspection or other maintenance in accordance with that section, or in accordance with operations specifications approved by the Administrator under part 121 or 135, or an inspection program approved under §91.409(e).**

## Part 43 (cont.)

### §43.17 Maintenance, preventive maintenance, and alterations performed on U.S. aeronautical products by certain Canadian persons.

**(a) Definitions .** For purposes of this section:

***Aeronautical product*** means any civil aircraft or airframe, aircraft engine, propeller, appliance, component, or part to be installed thereon.

***Canadian aeronautical product*** means any aeronautical product under airworthiness regulation by Transport Canada Civil Aviation.

***U.S. aeronautical product*** means any aeronautical product under airworthiness regulation by the FAA.

## Part 43 (cont.)

### §43.17 Maintenance, preventive maintenance, and alterations performed on U.S. aeronautical products by certain Canadian persons (cont.).

**(b) *Applicability.*** This section does not apply to any U.S. aeronautical products maintained or altered under any bilateral agreement made between Canada and any country other than the United States.

**(c) *Authorized persons .*** (1) A person holding a valid Transport Canada Civil Aviation Maintenance Engineer license and appropriate ratings may, with respect to a U.S.-registered aircraft located in Canada, perform maintenance, preventive maintenance, and alterations in accordance with the requirements of paragraph (d) of this section and approve the affected aircraft for return to service in accordance with the requirements of paragraph (e) of this section.

## Part 43 (cont.)

### §43.17 Maintenance, preventive maintenance, and alterations performed on U.S. aeronautical products by certain Canadian persons (cont.).

(2) A Transport Canada Civil Aviation Approved Maintenance Organization (AMO) holding appropriate ratings may, with respect to a U.S.-registered aircraft or other U.S. aeronautical products located in Canada, perform maintenance, preventive maintenance, and alterations in accordance with the requirements of paragraph (d) of this section and approve the affected products for return to service in accordance with the requirements of paragraph (e) of this section.

## Part 43 (cont.)

### §43.17 Maintenance, preventive maintenance, and alterations performed on U.S. aeronautical products by certain Canadian persons (cont.).

**(d) Performance requirements .** A person authorized in paragraph (c) of this section may perform maintenance (including any inspection required by Sec. 91.409 of this chapter, except an annual inspection), preventive maintenance, and alterations, provided:

- (1)** The person performing the work is authorized by Transport Canada Civil Aviation to perform the same type of work with respect to Canadian aeronautical products;
- (2)** The maintenance, preventive maintenance, or alteration is performed in accordance with a Bilateral Aviation Safety Agreement between the United States and Canada and associated Maintenance Implementation Procedures that provide a level of safety equivalent to that provided by the provisions of this chapter;

## Part 43 (cont.)

### **§43.17 Maintenance, preventive maintenance, and alterations performed on U.S. aeronautical products by certain Canadian persons (cont.).**

**(3) The maintenance, preventive maintenance, or alteration is performed such that the affected product complies with the applicable requirements of part 36 of this chapter; and**

**(4) The maintenance, preventive maintenance, or alteration is recorded in accordance with a Bilateral Aviation Safety Agreement between the United States and Canada and associated Maintenance Implementation Procedures that provide a level of safety equivalent to that provided by the provisions of this chapter.**

## **Part 43 (cont.)**

### **§43.17 Maintenance, preventive maintenance, and alterations performed on U.S. aeronautical products by certain Canadian persons (cont.).**

**(e) *Approval requirements.* (1) To return an affected product to service, a person authorized in paragraph (c) of this section must approve (certify) maintenance, preventive maintenance, and alterations performed under this section, except that an Aircraft Maintenance Engineer may not approve a major repair or major alteration.**

**(2) An AMO whose system of quality control for the maintenance, preventive maintenance, alteration, and inspection of aeronautical products has been approved by Transport Canada Civil Aviation, or an authorized employee performing work for such an AMO, may approve (certify) a major repair or major alteration performed under this section if the work was performed in accordance with technical data approved by the FAA.**



## Part 43 (cont.)

### §43.17 Maintenance, preventive maintenance, and alterations performed on U.S. aeronautical products by certain Canadian persons (cont.).

(f) No person may operate in air commerce an aircraft, airframe, aircraft engine, propeller, or appliance on which maintenance, preventive maintenance, or alteration has been performed under this section unless it has been approved for return to service by a person authorized in this section.

## **Part 43 (cont.)**

### **Appendix A to Part 43 --Major Alterations, Major Repairs, and Preventive Maintenance.**

**(a) Major alterations —(1) Airframe major alterations.** Alterations of the following parts and alterations of the following types, when not listed in the aircraft specifications issued by the FAA, are airframe major alterations:

- (i) Wings.**
- (ii) Tail surfaces.**
- (iii) Fuselage.**
- (iv) Engine mounts.**
- (v) Control system.**
- (vi) Landing gear.**
- (vii) Hull or floats.**

## **Part 43 (cont.)**

### **Appendix A to Part 43 --Major Alterations, Major Repairs, and Preventive Maintenance (cont.).**

- (viii) Elements of an airframe including spars, ribs, fittings, shock absorbers, bracing, cowling, fairings, and balance weights.**
- (ix) Hydraulic and electrical actuating system of components.**
- (x) Rotor blades.**
- (xi) Changes to the empty weight or empty balance which result in an increase in the maximum certificated weight or center of gravity limits of the aircraft.**
- (xii) Changes to the basic design of the fuel, oil, cooling, heating, cabin pressurization, electrical, hydraulic, de-icing, or exhaust systems.**
- (xiii) Changes to the wing or to fixed or movable control surfaces which affect flutter and vibration characteristics.**

## Part 43 (cont.)

### Appendix A to Part 43 --Major Alterations, Major Repairs, and Preventive Maintenance (cont.).

**(2) Powerplant major alterations.** The following alterations of a powerplant when not listed in the engine specifications issued by the FAA, are powerplant major alterations.

(i) Conversion of an aircraft engine from one approved model to another, involving any changes in compression ratio, propeller reduction gear, impeller gear ratios or the substitution of major engine parts which requires extensive rework and testing of the engine.

(ii) Changes to the engine by replacing aircraft engine structural parts with parts not supplied by the original manufacturer or parts not specifically approved by the Administrator.

(iii) Installation of an accessory which is not approved for the engine.

(iv) Removal of accessories that are listed as required equipment on the aircraft or engine specification.

(v) Installation of structural parts other than the type of parts approved for the installation.

(vi) Conversions of any sort for the purpose of using fuel of a rating or grade other than that listed in the engine specifications.

## **Part 43 (cont.)**

### **Appendix A to Part 43 --Major Alterations, Major Repairs, and Preventive Maintenance (cont.).**

**(3) Propeller major alterations.** The following alterations of a propeller when not authorized in the propeller specifications issued by the FAA are propeller major alterations:

- (i) Changes in blade design.**
- (ii) Changes in hub design.**
- (iii) Changes in the governor or control design.**
- (iv) Installation of a propeller governor or feathering system.**
- (v) Installation of propeller de-icing system.**
- (vi) Installation of parts not approved for the propeller.**

## **Part 43 (cont.)**

### **Appendix A to Part 43 --Major Alterations, Major Repairs, and Preventive Maintenance (cont.).**

**(4) *Appliance major alterations.*** Alterations of the basic design not made in accordance with recommendations of the appliance manufacturer or in accordance with an FAA Airworthiness Directive are appliance major alterations. In addition, changes in the basic design of radio communication and navigation equipment approved under type certification or a Technical Standard Order that have an effect on frequency stability, noise level, sensitivity, selectivity, distortion, spurious radiation, AVC characteristics, or ability to meet environmental test conditions and other changes that have an effect on the performance of the equipment are also major alterations.

## **Part 43 (cont.)**

### **Appendix A to Part 43 --Major Alterations, Major Repairs, and Preventive Maintenance (cont.).**

**(b) Major repairs —(1) Airframe major repairs.** Repairs to the following parts of an airframe and repairs of the following types, involving the strengthening, reinforcing, splicing, and manufacturing of primary structural members or their replacement, when replacement is by fabrication such as riveting or welding, are airframe major repairs.

- (i) Box beams.**
- (ii) Monocoque or semimonocoque wings or control surfaces.**
- (iii) Wing stringers or chord members.**
- (iv) Spars.**
- (v) Spar flanges.**
- (vi) Members of truss-type beams.**
- (vii) Thin sheet webs of beams.**

## **Part 43 (cont.)**

### **Appendix A to Part 43 --Major Alterations, Major Repairs, and Preventive Maintenance (cont.).**

- (viii) Keel and chine members of boat hulls or floats.**
- (ix) Corrugated sheet compression members which act as flange material of wings or tail surfaces.**
- (x) Wing main ribs and compression members.**
- (xi) Wing or tail surface brace struts.**
- (xii) Engine mounts.**
- (xiii) Fuselage longerons.**
- (xiv) Members of the side truss, horizontal truss, or bulkheads.**
- (xv) Main seat support braces and brackets.**
- (xvi) Landing gear brace struts.**
- (xvii) Axles.**
- (xviii) Wheels.**



## **Part 43 (cont.)**

### **Appendix A to Part 43 --Major Alterations, Major Repairs, and Preventive Maintenance (cont.).**

- (xix) Skis, and ski pedestals.**
- (xx) Parts of the control system such as control columns, pedals, shafts, brackets, or horns.**
- (xxi) Repairs involving the substitution of material.**
- (xxii) The repair of damaged areas in metal or plywood stressed covering exceeding six inches in any direction.**
- (xxiii) The repair of portions of skin sheets by making additional seams.**
- (xxiv) The splicing of skin sheets.**
- (xxv) The repair of three or more adjacent wing or control surface ribs or the leading edge of wings and control surfaces, between such adjacent ribs.**
- (xxvi) Repair of fabric covering involving an area greater than that required to repair two adjacent ribs.**

## **Part 43 (cont.)**

### **Appendix A to Part 43 --Major Alterations, Major Repairs, and Preventive Maintenance (cont.).**

(xxvii) Replacement of fabric on fabric covered parts such as wings, fuselages, stabilizers, and control surfaces.

(xxviii) Repairing, including rebottoming, of removable or integral fuel tanks and oil tanks.

(2) Powerplant major repairs. Repairs of the following parts of an engine and repairs of the following types, are powerplant major repairs:

(i) Separation or disassembly of a crankcase or crankshaft of a reciprocating engine equipped with an integral supercharger.

(ii) Separation or disassembly of a crankcase or crankshaft of a reciprocating engine equipped with other than spur-type propeller reduction gearing.

(iii) Special repairs to structural engine parts by welding, plating, metalizing, or other methods.

## **Part 43 (cont.)**

### **Appendix A to Part 43 --Major Alterations, Major Repairs, and Preventive Maintenance (cont.).**

**(2) Powerplant major repairs.** Repairs of the following parts of an engine and repairs of the following types, are powerplant major repairs:

- (i) Separation or disassembly of a crankcase or crankshaft of a reciprocating engine equipped with an integral supercharger.**
- (ii) Separation or disassembly of a crankcase or crankshaft of a reciprocating engine equipped with other than spur-type propeller reduction gearing.**
- (iii) Special repairs to structural engine parts by welding, plating, metalizing, or other methods.**

## Part 43 (cont.)

### Appendix A to Part 43 --Major Alterations, Major Repairs, and Preventive Maintenance (cont.).

**(3) Propeller major repairs.** Repairs of the following types to a propeller are propeller major repairs:

- (i) Any repairs to, or straightening of steel blades.
- (ii) Repairing or machining of steel hubs.
- (iii) Shortening of blades.
- (iv) Retipping of wood propellers.
- (v) Replacement of outer laminations on fixed pitch wood propellers.
- (vi) Repairing elongated bolt holes in the hub of fixed pitch wood propellers.
- (vii) Inlay work on wood blades.
- (viii) Repairs to composition blades.
- (ix) Replacement of tip fabric.

## Part 43 (cont.)

### Appendix A to Part 43 --Major Alterations, Major Repairs, and Preventive Maintenance (cont.).

- (x) Replacement of plastic covering.
- (xi) Repair of propeller governors.
- (xii) Overhaul of controllable pitch propellers.
- (xiii) Repairs to deep dents, cuts, scars, nicks, etc., and straightening of aluminum blades.
- (xiv) The repair or replacement of internal elements of blades.
- (4) *Appliance major repairs.* Repairs of the following types to appliances are appliance major repairs:
  - (i) Calibration and repair of instruments.
  - (ii) Calibration of radio equipment.
  - (iii) Rewinding the field coil of an electrical accessory.
  - (iv) Complete disassembly of complex hydraulic power valves.
  - (v) Overhaul of pressure type carburetors, and pressure type fuel, oil and hydraulic pumps.

## **Part 43 (cont.)**

### **Appendix A to Part 43 --Major Alterations, Major Repairs, and Preventive Maintenance (cont.).**

- (c) Preventive maintenance.** Preventive maintenance is limited to the following work, provided it does not involve complex assembly operations:
- (1) Removal, installation, and repair of landing gear tires.**
  - (2) Replacing elastic shock absorber cords on landing gear.**
  - (3) Servicing landing gear shock struts by adding oil, air, or both.**
  - (4) Servicing landing gear wheel bearings, such as cleaning and greasing.**
  - (5) Replacing defective safety wiring or cotter keys.**
  - (6) Lubrication not requiring disassembly other than removal of nonstructural items such as cover plates, cowlings, and fairings.**
  - (7) Making simple fabric patches not requiring rib stitching or the removal of structural parts or control surfaces. In the case of balloons, the making of small fabric repairs to envelopes (as defined in, and in accordance with, the balloon manufacturers' instructions) not requiring load tape repair or replacement.**

## **Part 43 (cont.)**

### **Appendix A to Part 43 --Major Alterations, Major Repairs, and Preventive Maintenance (cont.).**

- (8) Replenishing hydraulic fluid in the hydraulic reservoir.**
- (9) Refinishing decorative coating of fuselage, balloon baskets, wings tail group surfaces (excluding balanced control surfaces), fairings, cowlings, landing gear, cabin, or cockpit interior when removal or disassembly of any primary structure or operating system is not required.**
- (10) Applying preservative or protective material to components where no disassembly of any primary structure or operating system is involved and where such coating is not prohibited or is not contrary to good practices.**
- (11) Repairing upholstery and decorative furnishings of the cabin, cockpit, or balloon basket interior when the repairing does not require disassembly of any primary structure or operating system or interfere with an operating system or affect the primary structure of the aircraft.**

## **Part 43 (cont.)**

### **Appendix A to Part 43 --Major Alterations, Major Repairs, and Preventive Maintenance (cont.).**

- (12) Making small simple repairs to fairings, nonstructural cover plates, cowlings, and small patches and reinforcements not changing the contour so as to interfere with proper air flow.**
- (13) Replacing side windows where that work does not interfere with the structure or any operating system such as controls, electrical equipment, etc.**
- (14) Replacing safety belts.**
- (15) Replacing seats or seat parts with replacement parts approved for the aircraft, not involving disassembly of any primary structure or operating system.**
- (16) Trouble shooting and repairing broken circuits in landing light wiring circuits.**
- (17) Replacing bulbs, reflectors, and lenses of position and landing lights.**



## **Part 43 (cont.)**

### **Appendix A to Part 43 --Major Alterations, Major Repairs, and Preventive Maintenance (cont.).**

- (18) Replacing wheels and skis where no weight and balance computation is involved.**
- (19) Replacing any cowling not requiring removal of the propeller or disconnection of flight controls.**
- (20) Replacing or cleaning spark plugs and setting of spark plug gap clearance.**
- (21) Replacing any hose connection except hydraulic connections.**
- (22) Replacing prefabricated fuel lines.**
- (23) Cleaning or replacing fuel and oil strainers or filter elements.**
- (24) Replacing and servicing batteries.**
- (25) Cleaning of balloon burner pilot and main nozzles in accordance with the balloon manufacturer's instructions.**
- (26) Replacement or adjustment of nonstructural standard fasteners incidental to operations.**

## **Part 43 (cont.)**

### **Appendix A to Part 43 --Major Alterations, Major Repairs, and Preventive Maintenance (cont.).**

(27) The interchange of balloon baskets and burners on envelopes when the basket or burner is designated as interchangeable in the balloon type certificate data and the baskets and burners are specifically designed for quick removal and installation.

(28) The installations of anti-misfueling devices to reduce the diameter of fuel tank filler openings provided the specific device has been made a part of the aircraft type certificate data by the aircraft manufacturer, the aircraft manufacturer has provided FAA-approved instructions for installation of the specific device, and installation does not involve the disassembly of the existing tank filler opening.

(29) Removing, checking, and replacing magnetic chip detectors.

## **Part 43 (cont.)**

### **Appendix A to Part 43 --Major Alterations, Major Repairs, and Preventive Maintenance (cont.).**

**(30) The inspection and maintenance tasks prescribed and specifically identified as preventive maintenance in a primary category aircraft type certificate or supplemental type certificate holder's approved special inspection and preventive maintenance program when accomplished on a primary category aircraft provided:**

**(i) They are performed by the holder of at least a private pilot certificate issued under part 61 who is the registered owner (including co-owners) of the affected aircraft and who holds a certificate of competency for the affected aircraft (1) issued by a school approved under §147.21(e) of this chapter; (2) issued by the holder of the production certificate for that primary category aircraft that has a special training program approved under §21.24 of this subchapter; or (3) issued by another entity that has a course approved by the Administrator; and**

## **Part 43 (cont.)**

### **Appendix A to Part 43 --Major Alterations, Major Repairs, and Preventive Maintenance (cont.).**

(ii) The inspections and maintenance tasks are performed in accordance with instructions contained by the special inspection and preventive maintenance program approved as part of the aircraft's type design or supplemental type design.

(31) Removing and replacing self-contained, front instrument panel mounted navigation and communication devices that employ tray-mounted connectors that connect the unit when the unit is installed into the instrument panel, (excluding automatic flight control systems, transponders, and microwave frequency distance measuring equipment (DME)). The approved unit must be designed to be readily and repeatedly removed and replaced, and pertinent instructions must be provided. Prior to the unit's intended use, and operational check must be performed in accordance with the applicable sections of part 91 of this chapter.

## **Part 43 (cont.)**

### **Appendix A to Part 43 --Major Alterations, Major Repairs, and Preventive Maintenance (cont.).**

**(32) Updating self-contained, front instrument panel-mounted Air Traffic Control (ATC) navigational software data bases (excluding those of automatic flight control systems, transponders, and microwave frequency distance measuring equipment (DME)) provided no disassembly of the unit is required and pertinent instructions are provided. Prior to the unit's intended use, an operational check must be performed in accordance with applicable sections of part 91 of this chapter.**

**(Secs. 313, 601 through 610, and 1102, Federal Aviation Act of 1958 as amended (49 U.S.C. 1354, 1421 through 1430 and 1502); (49 U.S.C. 106(g) (Revised Pub. L. 97-449, Jan. 21, 1983); and 14 CFR 11.45)**

## **Part 43 (cont.)**

### **Appendix B to Part 43 --Recording of Major Repairs and Major Alterations**

**(a) Except as provided in paragraphs (b), (c), and (d) of this appendix, each person performing a major repair or major alteration shall:**

- (1) Execute FAA Form 337 at least in duplicate;**
- (2) Give a signed copy of that form to the aircraft owner; and**
- (3) Forward a copy of that form to the FAA Aircraft Registration Branch in Oklahoma City, Oklahoma, within 48 hours after the aircraft, airframe, aircraft engine, propeller, or appliance is approved for return to service.**

## **Part 43 (cont.)**

### **Appendix B to Part 43 --Recording of Major Repairs and Major Alterations (cont.)**

**(b) For major repairs made in accordance with a manual or specifications acceptable to the Administrator, a certificated repair station may, in place of the requirements of paragraph (a)—**

- (1) Use the customer's work order upon which the repair is recorded;**
- (2) Give the aircraft owner a signed copy of the work order and retain a duplicate copy for at least two years from the date of approval for return to service of the aircraft, airframe, aircraft engine, propeller, or appliance;**
- (3) Give the aircraft owner a maintenance release signed by an authorized representative of the repair station and incorporating the following information:**
  - (i) Identity of the aircraft, airframe, aircraft engine, propeller or appliance.**
  - (ii) If an aircraft, the make, model, serial number, nationality and registration marks, and location of the repaired area.**
  - (iii) If an airframe, aircraft engine, propeller, or appliance, give the manufacturer's name, name of the part, model, and serial numbers (if any); and**

## Part 43 (cont.)

### Appendix B to Part 43 --Recording of Major Repairs and Major Alterations (cont.)

(4) Include the following or a similarly worded statement—  
“The aircraft, airframe, aircraft engine, propeller, or appliance identified above was repaired and inspected in accordance with current Regulations of the Federal Aviation Agency and is approved for return to service.

Pertinent details of the repair are on file at this repair station under Order No. \_\_\_\_\_,  
Date \_\_\_\_\_

Signed \_\_\_\_\_

For signature of authorized representative)

Repair station name) (Certificate No.)

\_\_\_\_\_.”

(Address)



## **Part 43 (cont.)**

### **Appendix B to Part 43 --Recording of Major Repairs and Major Alterations (cont.)**

**(c) Except as provided in paragraph (d) of this appendix, for a major repair or major alteration made by a person authorized in §43.17, the person who performs the major repair or major alteration and the person authorized by §43.17 to approve that work shall execute an FAA Form 337 at least in duplicate. A completed copy of that form shall be:**

- (1) Given to the aircraft owner; and**
- (2) Forwarded to the Federal Aviation Administration, Aircraft Registration Branch, AFS-750, Post Office Box 25504, Oklahoma City, OK 73125, within 48 hours after the work is inspected.**

## **Part 43 (cont.)**

### **Appendix B to Part 43 --Recording of Major Repairs and Major Alterations (cont.)**

**(d) For extended-range fuel tanks installed within the passenger compartment or a baggage compartment, the person who performs the work and the person authorized to approve the work by §43.7 shall execute an FAA Form 337 in at least triplicate. A completed copy of that form shall be:**

- (1) Placed on board the aircraft as specified in §91.417 of this chapter;**
- (2) Given to the aircraft owner; and**
- (3) Forwarded to the Federal Aviation Administration, Aircraft Registration Branch, AFS-751, Post Office Box 25724, Oklahoma City, OK 73125, within 48 hours after the work is inspected.**

**(Secs. 101, 610, 72 Stat. 737, 780, 49 U.S.C. 1301, 1430)**

# Repair Station Manual

# Training Program Manual

***Thank You***

